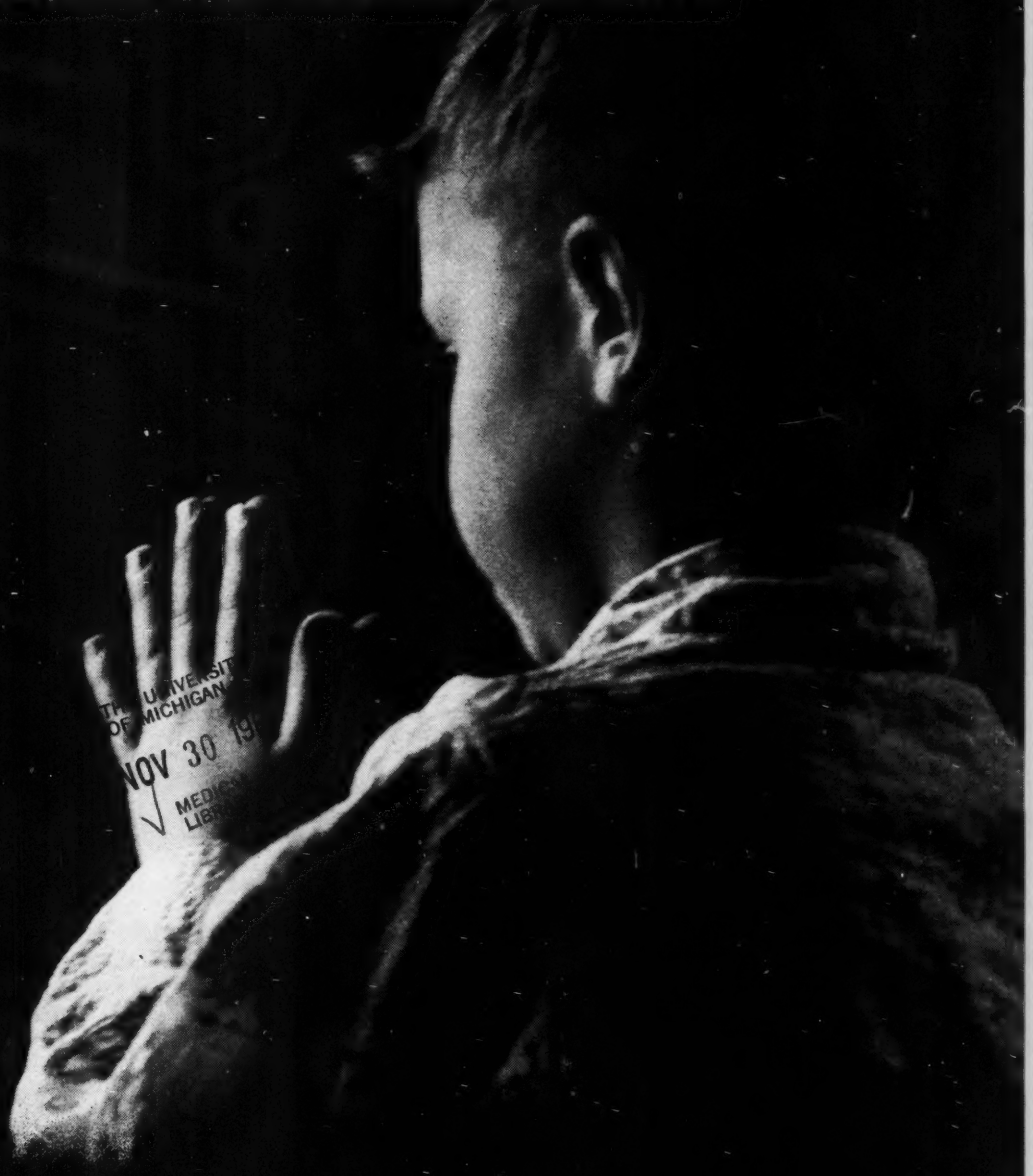
Volume 54
Number 11

The JOURNAL of the Oklahoma State Medical Association



The heart that answers another's prayer is never empty. Somewhere in your town a little boy will kneel and pray tonight. Perhaps he'll ask for Grandma to get well . . . for his older brother to keep out of trouble . . . for Mom and Dad to be happy again. How can you help answer his prayers—and the prayers of others in need? By giving the United Way. Your pledge to the United Community Campaign is a weapon against fear and loneliness, sickness and trouble. It builds a stronger community. It makes you a richer person. **GIVE THE UNITED WAY**

WHEN A
HIGH-
POTENCY
VITAMIN
PRODUCT IS
INDICATED...

Poison Information Center

1956-1961

LIKE Professor Higgins of *Pygmalion* and *My Fair Lady* fame, we have grown accustomed to her face. It will not be easy to get along without her. Oklahoma's Poison Information Center was one of the first to be established and we have heard of no other that quit.

Doctor Shoemaker, in semi-retirement from his departmental duties, devoted much time, effort and thought to the center. Under him, it developed into what we considered an indespensable facility. Perhaps his love of the project, and his intense satisfaction in the service the center was able to give, lead us to take too much for granted. Since his death in November, 1960, its continued function has depended on the voluntary efforts of Doctors John H. Gogerty, Richard W. Payne, H. V. L. Sapper, Robert F. Redmond, John A. Blaschke, Dave C. Mock, Marilyn Porter, Jacob L. Kay and Paul W. Smith. These people have done fine unselfish work, but at best it has been a make-shift affair, and they would be the first to say, not a satisfactory one. Effective operation of a Poison Information Center requires the presence of a full-time toxicologist, a suitably equipped laboratory and technical and secretarial help. Money for this is not available and our center was closed.

The University Medical Center offers many fine services to the physicians and people of Oklahoma. No service, however, stands out so clearly as did the center with a helping hand for any and everybody in need of its particular brand of help and with no requirement or qualification except the need. Every physician, every mother, every school nurse, every public health nurse, every office nurse, every hospital emergency room felt secure in the ability to obtain help when the emergency of poisoning arose. It was a fine and generous public service supplied by the Medical Center. It was a service not obtainable elsewhere within the state. The decision to cease operations must have been a difficult one for the Medical Center and must have been made only after exploring every possible means of keeping it in operation.

If a toxicologist is required for the successful and effective operation of a Poison Information Center, then every doctor's office and every hospital emergency room, which now become little such centers, are hopelessly inadequate unless the doctor involved happens to have a special interest in this field. This, few of them do. The rapid introduction of new drugs, new cleaning solutions, new insecticides, new household chemicals, new chemicals for doing things to women's hair, new bleaches and new pipe unstoppers makes text books on the subject obsolete by the time they are published.

A clue to the problem for each of us may be gained from the last nine months experience of the center. There were 857 calls; 417 from doctors, 87 from hospitals and 353 from patients. They referred, for the most part, to the following: internal medicine (176), household preparations (156), pesticides (148), cosmetics (72), plants and seeds (54), external medicine (41), petroleum products (37), paint and varnishes (33), metals (15).

A committee of the state association is looking into the matter, but in the meanwhile we will have to do the best we can, and try to remember that toad stools can't be washed out through a tube but have to be vomited. □

Since the preparation of this editorial, the Health Department has been exploring means of maintaining the Poison Information Center through its own and available consulting facilities. As we go to press this appears promising.

Point One

The Board of Trustees met in the headquarter offices of the Oklahoma State Medical Association on October 22nd. The various items of business are reported in this *Journal* but we wish by this means to call attention to the progress and further planning for the Point One program. (OSMA'S 5-Point Program, July *Journal.*)

Doctor R. R. Hannas of Sentinel reported as the chairman of the Council on Professional Education and for the Medical School Liaison Committee (Doctor G. E. Stanbro, Chairman). It was explained that the intent is to interest top high school students in pursuing medicine as a career and to inform them of admission policy and procedure in the University of Oklahoma School of Medicine. It is proposed that a part of this program shall be accomplished through the use of physician counselors at the high school level. All Trustees were requested to appoint such counselors, preferably at least one for each high school in the district. The report of these appointments should be in the Executive Office not later than December 1, 1961. Counselors so appointed will be supplied with ample quantities of informative material.

Members of the Board of Trustees are urged to make their appointments at the earliest convenience and doctors so appointed shall be encouraged to publicize the fact that this service is available. Regardless of appointments as such, it is felt that every member of the Oklahoma State Medical Association should be able and willing to participate in this program as the occasion may arise. Your cooperation is earnestly solicited. □

Clinton Gallaher M. D.
President

OSMA JOURNAL/scientific

Organic Behavior Disorders in Children*

PAUL C. BENTON, M.D.

Our experience indicates that the majority of parents whose children have school problems of any kind, first seek help from the family physician. Be prepared.

MANY CHILDREN referred for psychiatric care because of behavior disorders, neurotic patterns, or as disciplinary problems, have underlying mild involvement of the central nervous system. These children are commonly referred to as "Brain-damaged" or "Brain-injured." The central nervous system involvement may be due to developmental factors, but is more commonly thought to be the result of insults to the developing brain during the prenatal period, the perinatal period, or the post-natal period. The damage may be caused by infectious processes, toxic factors, anoxia, or actual physical trauma during any one of these periods. New medical advances save the lives of countless children. Many of these children, before the age of antibiotics or other life saving techniques, would have failed to obtain viability or died from diseases involving the central nervous system, such as meningitis or encephalitis. Some of those saved bear the marks of these ordeals in the form of cerebral dysfunction.

In the *Standard Nomenclature of Diseases and Operations,* Diseases of the Psychobiologic Unit, under Chronic Brain Disorders, it states: "The chronic organic brain syndromes result from relatively permanent, more or less irreversible, diffuse impairment of cerebral tissue function. While the underlying pathologic process may partially subside, or respond to specific treatment, there remains always a certain irreducible minimum of brain tissue destruction which cannot be reversed, even though the loss of function may be almost imperceptible clinically. The chronic brain syndrome may become milder, vary in degree, or process, but some disturbance of memory, judgment, orientation, comprehension and affect persists permanently." These symptoms affect these children in such a manner that they are frequently misunderstood and mislabeled problem children. One cannot deny the existence of the psychiatric problems, but it is important to determine whether their behavior is of a primary functional nature or is secondary to cerebral tissue dysfunction. The importance of differentiating the primary functional behavior problems from the

*Presented at the 55th Annual Meeting of the Oklahoma State Medical Association, May 7-9, 1961.

secondary organic behavior disorder lies in the fact that the approach to treatment in the two disorders varies greatly, and the prognosis may be more optimistic in the organic disorder than in the functional case. In both instances the problems are primarily around social adjustment, but there is generally a better prognosis for children whose psychiatric problems are secondary to organic factors than in those children whose problems are due to the emotional factors alone. Therefore, it is essential to determine the presence or absence of organic factors in children with behavior problems by a thorough evaluation.

As in any medical condition, a complete history is important. The original damage may have occurred at any time after conception, and a careful prenatal history should be taken, paying particular attention to maternal virus infections, exposure to radiation, anesthetics, bleeding or spotting, particularly during the first trimester, toxemias of pregnancy, maternal metabolic diseases, such as diabetes or thyroid conditions, and many other conditions that may affect the developing central nervous system of the embryo or fetus. It has been shown that even dietary deficiencies may have a profound influence. This is of particular importance these days when most women are trying to obtain the measurements of movie queens by diet fads. Prematurity, with its frequent complications, is one of the major causes of cerebral tissue damage. Although long, difficult labors and abnormal presentations may be contributing factors, precipitous and even normal vertex deliveries may be accompanied by symptomless cerebral hemorrhages. The water hammer effects of sudden differences between intrauterine pressure and atmospheric pressure may cause perivascular hemorrhages. Studies have shown that a large percentage of newborns show blood in the spinal fluid.

Anoxia and hypoxia also are common causes of damage to cerebral tissue. The oxygen demands of the brain are notoriously high, and there are many factors during pregnancy or the delivery process that may cause marked oxygen deprivation with resultant permanent after effects.

A careful inquiry into the various childhood illnesses and injuries is also important in a complete history. It is not uncommon for encephalitis to follow or complicate measles, mumps, whooping cough and other childhood diseases. It is the impression of our clinic that earlier brain insults predispose many of these children to such complications.

As the type of child I am discussing generally does not have obvious physical disabilities and is not intellectually retarded, the presenting complaint is usually that he is a naughty or difficult child who is quite a nuisance at home, in the classroom, and in the neighborhood. Characteristically, these children have certain clinical manifestations which taken individually have little significance. However, a total picture of hyperactivity out of proportion to age group, behavior that is poorly integrated, variable and often inco-ordinated, distractibility, poor concentration, disinhibition, perceptual and conceptual difficulties, perseveration and often difficulties with fine muscle co-ordination, especially activities requiring bimanual actions, should make one consider central nervous system dysfunction as an underlying basis of the child's difficulties.

Let us review these symptoms individually. These general behavioral characteristics are of diagnostic value only when recognized as a symptom complex; only significant when considered as a cluster of manifestations, of which no individual symptom is necessarily of prime importance.

1. *Hyperactivity—constantly in motion*: This may be purposeful or without purpose.

Paul C. Benton, M.D., who graduated from the University of Minnesota School of Medicine in 1936, limits his practice to his specialty, child psychiatry. He is Associate Professor in Clinical Psychiatry at the University of Oklahoma School of Medicine and instructor in the Department of Psychology at the University of Tulsa.

Doctor Benton is a Fellow in the American Psychiatric Association, the Academy of Psychosomatic Medicine and the Orthopsychiatric Association and a member of the American Association of Psychiatric Clinics for Children.

In these children the cortex is flooded by streams of unmodulated impulses coming in through sensory receptors, which cannot be adequately assimilated. This may be due to imperceptible injury to and subsequent dysfuntion of the diencephalon which fails to adequately filter out stimuli from sensory and visceral receptors.

2. *Poorly integrated, variable and in-co-ordinated behavior*: These children are often considered lazy and not trying. Some days they do well, other days poorly. They may have trouble riding a tricycle or bicycle, tying their shoes, buttoning their clothes, skipping, jumping rope, playing jacks, etc. A wide spread of abilities usually shows up in psychologic tests and may be one of the causes of school problems.

3. *Distractible*: They have difficulty concentrating on any one activity. They cannot separate the important from the unimportant so all impulses get equal valence.

4. *Perseveration*: To persevere is an admirable quality in which one pursues a course of action until the goal is achieved. In perseveration, the children carry the activity beyond their goal. This is more apt to occur when they are excited or under pressure. They repeat the same action over and over, ask the same questions, etc.

5. *Perceptual difficulties*: Perception is a process of the senses and occurs when an object is seen, a sound heard, or something is touched, tasted, or smelled, and there is some awareness of the experience.

Children with central nervous system disorders generally have trouble in co-ordinating the parts into wholes and cannot grasp a scene or situation in its entirety. They may highlight irrelevant details and have distorted versions of perceived objects. They have difficulty in eye-hand co-ordination and it shows up in their reproduction of drawings, in writing, in organization of paper work, reversals of letters, etc.

6. *Conception*: Perception is based on sensory experiences and conception is the resulting intellectual or thinking process—putting things together into a meaningful whole. There is also conception when ideas or memories come to the mind. These children have distorted perception and thus distorted concepts with resultant confusion, particularly in the relationship of time and space and ability to judge distance.

7. *Disinhibition*: These children are generally uninhibited and do not conform to an acceptable pattern of behavior in actions or conversation. Judgment is impaired and controls are inadequate. They have more difficulty than normal children in acquiring conscious control over their impulses. Sometimes when severely frustrated they lose complete control and develop violent tantrums.

All of these factors cause these children to have severe emotional problems due to their difficulty in interpreting and coping with their environment. This results in a great deal of anxiety and adds fuel to the fire. These children seem impulsive, seem unable to tolerate any delay in the gratification of their needs, are irritable, explosive, have a low frustration tolerance, and demand but cannot cope with close personal contacts. Their behavior is generally very immature. "He is different" exclaim his parents and teachers.

Most mothers have a deep concern about their worth and adequacy as women, wives, and especially mothers. A child, behaving as above, seems to offer clear proof of the mother's unfitness, leading to further tension in the mother and increasingly frantic efforts to mold the child into more acceptable patterns of behavior. In the hyperkinetic infant, a normal amount of mothering may be totally inadequate. When this fails, the development of unconscious hostility towards the child, which he returns in kind, may set off a train of severe emotional disturbances. Later in the child's life, he has difficulty in fitting into any scheme of family activity and he is further rejected.

Needless to say, when he reaches the crowded classrooms of today the teacher generally becomes hostile toward the child who, despite adequate intelligence, cannot sit still, cannot keep his mind on his work, hardly ever finishes an assigned task, has messy and poorly organized paper work, cannot grasp abstract ideas and therefore has reading and arithmetic learning disabilities, and in general is a distracting and disorganizing influence in any group situation.

The net result of all this is extreme unhappiness, a disturbed self-image and generally acting out behavior that brings him

to the attention of the physician or psychiatric clinic.

If these children are seen early enough and a diagnosis of "Chronic Brain Syndrome with an Overlay of Emotional Problems" is established and proper treatment instituted, the ultimate prognosis is generally favorable in those children with average or above average intellectual potentials.

Diagnosis is often difficult to establish as the general physical examination does not reveal specific abnormalities. Even a careful neurologic evaluation may fall within normal limits. However, one has to remember that the neurologic examination is a crude evaluation of the functioning of the central nervous system through presumptive and indirect means. It is particularly difficult to do a neurologic examination on a child. Although positive evidence of brain damage is helpful, a negative neurologic examination does not rule out mild diffuse abnormalities of the central nervous system.

The electroencephalogram is often helpful as a diagnostic aid. Here again, a normal E.E.G does not necessarily rule out pathology of the central nervous system. However, cerebral dysrhythmias are fairly common in this disorder.

Psychologic tests are frequently very helpful as they bring out the wide variations in ability, the perceptual and conceptual distortions and impaired judgment of these children.

No one test gives positive evidence. It is only by considering the total psychobiologic unit that the diagnosis can be established. The general behavior is perhaps the prime factor in establishing the diagnosis.

The child with an organically based behavior disorder is operating under a handicap, but this can be minimized. As maturation proceeds there seems to be a leveling-off process as the cortex develops and takes over more control of the diencephalon. The hyperkinetic child may become a rather placid adult.

There are several types of medications that seem to reduce the flood of impulses to the cortex. The amphetamines, both dexedrine and benzedrine, have been known to be beneficial for many years. More recently the phenothiazines and other tranquilizing drugs have proven helpful. New drugs are being explored constantly and there is considerable possibility that research will see tremendous changes in our treatment of this syndrome.

Medication alone is not sufficient to carry these hyperkinetic children through their stormy childhood. The course of their adjustment depends upon the acceptance and support they receive at home, in school and in the community. It takes them longer to mature and their need for a prolongation of the infantile experience should be recognized. Interpretation of their problems to parents, siblings, and teachers is most helpful in establishing new attitudes that are less threatening and anxiety producing.

Sometimes special education facilities need to be utilized until they have overcome some of their difficulties or at least learned to compensate for them. Experimental schools using special education techniques have been most encouraging and many of these children have been able to return to regular schools after one to three years of special training.

SUMMARY

A common cause of children's behavior disorders is a mild diffuse organic involvement of the central nervous system. This is characterized by hyperactivity, short attention span, poor powers of concentration, irritability, impulsiveness, variability and poor school work with reading and arithmetic disabilities. Mild speech disorders and strabismus are commonly associated symptoms. The existence of this complex leads to many psychologic problems due to the extremely irritating effect it has upon parents, families, and teachers. Often the history reveals some clear cut organic insult to the central nervous system which may have occurred before birth, during birth or within five years after birth. The insult presumably results in a dysfunction of the diencephalon. This exposes the cortex to unusually intense storms of stimuli and interferes with the normal functioning of the cortex. This situation may in time be overcome by the normal maturational process. Pending the establishment of a reasonable balance, some

medications such as amphetamines, tranquilizers, and other drugs have an ameliorating effect.

Differential diagnosis between the primary functional and the secondary organic behavior disorders is extremely important from a treatment and a prognostic standpoint.

Some community awareness of the fact that behavior disturbances and disorders may be related to physical illness is necessary. This means awareness on the part of the physicians, teachers, and parents. These hyperactive children are difficult to live with and their parents are usually overwhelmed by the problem. There is too much tendency today to contribute all the faults of children's difficulties to inadequate parents. Supporting the parents through the readjustment of the child is an essential part of the treatment.

Problems involving defect or damage of the central nervous system belong in the category of multiple-discipline diseases. The physician need not feel personally inadequate if he does not possess the information necessary for the management of all aspects of the problem. He should not feel threatened by an inability to provide an exact etiologic diagnosis or by the fact that he cannot offer a specific cure. Many different disciplines may make contributions to the diagnosis, treatment and management of these children. The family physician, familiar with the syndrome, may be most helpful in the guidance of the family and the overall coordination of the many phases of management. □

REFERENCES

1. Bender, L.: Psychopathology of Children with Organic Brain Disorders. Springfield, Illinois, Charles C. Thomas. 1956.
2. Bradley, C.: Characteristics and Management of Children with Behavior Problems Associated with Organic Brain Damage. Ped. Cl. of No. Am., pp. 1049-1060. November, 1959.
3. Dillon, H. and Leopold, R. L.: Children and the Post-Concussion Syndrome. J.A.M.A. 175: 86, 1961.
4. Dunlap, J. C.: Obstetric Oxygenation. Texas State Journal of Medicine, 52: 806, 1956.
5. Eisenberg, L.: Psychiatric Implications of Brain Damage in Children. Psychiat. Quart., 31: 72, 1957.
6. Garrard, S. and Richmond, J. B.: Psychological Aspects of the Management of Children with Defects or Damage of the Central Nervous System. Ped. Cl. of No. Am., pp. 1033-1048. November, 1957.
7. Hughes, J. G.: The Study of the Epileptic Child. Ped. Cl. of No. Am., pp. 1061-1077. November, 1957.
8. Hughes, J. G.: Early Detection of Cerebral Injury. J. Pediat., 40: 606, 1952.
9. Knott, J. R.: E.E.G. and Behavior. Am. Jour. Orthopsych., 30: 292, 1960.
10. Lawrence, M. M.: Minimal Brain Injury in Child Psychiatry. Comprehensive Psychia., 1: 360, 1960.
11. Laufer, M. W., Denhoff, E., and Solomons, G.: Hyperkinetic Impulse Disorder in Children's Behavior Problems. Psychosom. Med., 19: 38, 1957.
12. Lewis, R. S.: The Other Child. New York. Grune and Stratton, Inc. 1951.
13. Pasamanick, B. and Knobloch, H.: Brain Damage and Reproductive Casualty. Am. J. Orthopsych., 30: 298, 1960.
14. Standard Nomenclature of Diseases and Operations, Diseases of the Psychobiologic Unit. Fourth Edition. Philadelphia, Pa. The Blakistone Co. 1952.
15. Strauss, A. A. and Lehtinen, L. E.: Psychopathology and Education of the Brain-Injured Child. New York. Grune and Stratton, Inc. Volume I. 1948.
16. Teuber, H. L.: The Premorbid Personality and Reaction to Brain Damage. Am. J. Orthopsych., 30: 322, 1960.

OTHER REFERENCES—Pamphlets

1. A Brief Picture of the Brain-Injured Child. Milwaukee, Wisc. Society for Brain Injured Children, Inc.
2. The Child with Brain Damage: Proceedings of the 1959 Annual Meeting of the Association for the Aid of Crippled Children. 1959.
3. Perinatal Mortality in New York City. Harvard Univ. Press. 1955.

4818 South Lewis, Tulsa, Oklahoma

OU Applies for Giant CD Program

The University of Oklahoma's Extension Division has revealed plans to apply for $1.5 million in Federal funds to launch a four-year prototype program of training disaster health care teams.

Designed for grass roots training, the project is expected to develop a program for teaching civil defense health which will be applicable for use by other state universities. In addition to training health care teams from Oklahoma communities, the overall plans of the proposed civil defense study center include professional education programs, the production of training aids and films, and public education in general.

The budget request includes tuition, room and board for the 3,000 Oklahomans expected to take the health care training. Students will be housed and trained at the university's new multi-million-dollar Kellogg Foundation.

Surgery For Endometriosis*

JOSEPH H. PRATT, M.D.

Though the majority of endometrial lesions are small, careful and considered decisions are required in the young woman with symptomatic or extensive endometriosis so that unnecessary removal of ovaries can be avoided.

THE TREATMENT of endometriosis is an important facet of the work of any surgeon performing pelvic operations or even general abdominal operations. Endometriosis will be encountered in a large number of women, irrespective of the preoperative diagnosis or the indications for laparotomy, although certainly it will not be the primary reason for operation in more than a small number of patients. It can be encountered in the most unexpected locations, and it may occur at almost any age except in the very young. As an incidental finding, endometriosis will generally be of no particular importance. Small bluish spots may be seen on the peritoneum of the cul-de-sac or behind the uterus; a brownish-red spot may be present on the surface of one ovary; there may be a moth-eaten, scarred, and puckered appearance to the uterosacral ligaments; the rectosigmoid may be adherent behind the uterus to the back of the cervix and obliterate the cul-de-sac; or there may be small spots on epiploic tags, the tip of the appendix, or the wall of the sigmoid. When the uterus has been removed, the pathologist will often identify on routine sections an area of adenomyosis in the wall of the uterus or a larger, more discrete nodule that is very much like a fibroid and contains hemorrhagic areas but no true capsule.

Estimates of the incidence of endometriosis depend on the interest of the particular authors. Although some believe that it occurs in as many as 50 per cent of white women more than 30 years old who undergo laparotomy, it is difficult to arrive at an accurate figure. Israel and Woutersz[1] reported 307 consecutive cases of pathologically proven adenomyosis found in a series of a little more than 3,000 hysterectomies, or an incidence of 10 per cent of the uteri removed. The preoperative diagnosis was suggested in only eight cases (2.6 per cent) in the entire group with endometriosis. (The chief indications for surgery, which were often multiple, were abnormal uterine bleeding, in 67.7 per cent; leiomyoma, in 62.4 per cent; prolapse of the uterus, in 28.2 per cent; and carcinoma of the endometrium, in 5.3 per cent.) Unlike external endometriosis, adenomyosis seems to be more frequent in multiparous patients, and it certainly is not clinically associated with sterility or low fertility rates as is endometriosis. When localized tumors of adenomyosis are encountered, they should be treated as though they were fibroids and shelled out of the uterine wall. The surgeon need only be alert to the fact that the adenomyoma does not have a discrete capsule or boundary, and therefore in the excision of such a tumor he must show a degree of restraint in the amount of tissue he removes. The prognosis, of course, is excellent from the standpoint of a possible pregnancy, but caution must be used with respect to the possible development of another adenomyoma. Adenomyomas are not necessarily small, and large tumors or cystic degeneration in a tumor may occasionally confound the surgeon;

*Presented at the meeting of the Oklahoma State Medical Association, Tulsa, Oklahoma, May 7-9, 1961.

cystic lesions measuring 15 to 20 cm. in diameter have been reported. The large tumors arise from the uterus, but their appearance is so unlike that of the ordinary adenomyoma that the diagnosis is generally missed by the surgeon both preoperatively and at the operating table; it is established only when the pathologist examines the tissues microscopically.

A somewhat different situation exists when the adenomyosis is diffuse and is causing generalized enlargement of the uterine wall. The uterus is symmetrically enlarged and firm, and usually the patient has a history of menorrhagia and dysmenorrhea. The treatment, if the patient's family will listen to reason, is total abdominal hysterectomy with preservation of ovarian tissue. The cut surface of the thickened wall has a leiomyomatous appearance, with small hemorrhagic areas and no distinct limitation of the process; comparison of this appearance with the relatively normal appearance of the endometrium makes the gross diagnosis an easy one. Fortunately, although external endometriosis is important in the 20's and 30's, adenomyosis reaches its peak incidence at 45 years, when the loss of the uterus is no problem and may even be a blessing.

We use the term "adenomyosis" when we refer to the presence of small areas of endometrial glands and stroma in the myometrium; we speak of "adenomyoma" when this tissue occurs in the rectovaginal septum, in wall of the rectum, or even posteriorly behind the rectum in the hollow of the sacrum. The last-named site of involvement is so uncommon that unless there is a pronounced association of rectal pain with the menses or increased tenderness in the nodule during or just before menstruation, the diagnosis is liable to be overlooked. The treatment of such abnormal hard lesions is excision. Malignant disease must be considered in the differential diagnosis, and an alert pathologist, using frozen sections, can be of invaluable assistance to the surgeon in making the diagnosis. Excision may be difficult because of the location of the adenomyoma deep in the pelvis. Very likely the lesion will involve the wall of the bowel, but since it is benign, radical resection of the bowel is not required, segmental resection or removal of part of the intestinal wall sufficing. The continuity of the bowel can be re-established and there will, of course, be no reason to extirpate the uterus or ovaries.

External endometriosis, or simply endometriosis, is actually much more important to the surgeon than the occasional case of adenomyosis. It may occur in a woman 25 to 40 years old, causing dysmenorrhea of an acquired (as opposed to the primary) type, and its course is often progressive. Menorrhagia is common and metrorrhagia is not infrequent; the menses tend to be irregular in timing. There may be dyspareunia and pelvic discomfort after coitus. The bowel habits are subject to change: constipation is common, and painful defecation is quite characteristic when it is associated with the menses.

The physical findings may be extremely variable. If tender, taut, nodular uterosacral ligaments are palpable, the diagnosis becomes evident. More often, palpation only reveals some nodularity at the peritoneal reflexion behind the uterus. The uterus may be retroflexed and relatively sensitive to pressure, and one or both ovaries may be fixed and enlarged. These patients usually have a poor record of fertility, and a history of sterility or only one pregnancy is common. If the diagnosis is definite and the symptoms are minimal, no surgical treatment is indicated at the moment.

If the symptoms become more severe, and especially if the woman is losing time from work and has begun to use codeine or stronger analgesics, the decision must be made regarding the value of surgical treatment for

---

Since his graduation from Harvard University School of Medicine in 1927, Joseph Hyde Pratt, M.D., has been certified by the American Board of Surgery and the American Board of Obstetrics and Gynecology. He is now Associate Professor of Surgery at the Graduate School, Mayo Foundation, University of Minnesota.

Memberships held by Doctor Pratt include the American College of Surgeons, the American College of Obstetrics and Gynecology, the American Association of Obstetrics and Gynecology, the Society of Pelvic Surgeons and the Western Surgical Society.

such a patient. Without question, if the pelvis is cleaned out and all ovarian tissue is extirpated, the symptoms due to endometriosis will subside; however, the woman will have been left in the change of life. In the older patient of 38 to 40 years or more, this is not too serious, because the ovaries would have had relatively few years of activity left. But in a young woman in her 20's, especially one with only one child or no children at all, careful, critical, and experienced judgment is needed to decide how best to attack the problem.

When the symptoms are out of proportion to the physical findings and the examining physician can demonstrate few objective signs, long trials of medical treatment and procrastination are definitely indicated, in the hope that a pregnancy will intervene, that control may be achieved by medical measures, or that a more definitive diagnosis will be made. If there is no relief, exploration may be necessary, both to make a more accurate diagnosis and, at the same time, to carry out such measures as seem indicated. The patient and her family should be informed about the more likely situations and should have an idea of the possible extent of the operation. The surgical picture of endometrial lesions is a variable one, ranging from the presence of large bilateral ovarian endometriomas, with considerable adherence to the colon, to small, bluish nodules and tiny cysts on the uterosacral ligaments. When the region of involvement is not extensive, the nodules should be eliminated by excision or cautery. If there has been any suggestion of adenomyosis or if the lesions are mainly on the back of the uterus or on the uterosacral ligaments, a presacral neurectomy is an excellent adjuvant to the simple excision of the endometrial lesions. If ovarian endometriosis is present, the lesions should be shaved off and the bleeding controlled with atraumatic sutures. When ovarian endometriomas are present, it may be necessary to sacrifice one ovary if the remaining ovary seems free from disease. Even with bilateral endometriomas, every effort should be made to preserve ovarian tissue in the young woman who is infertile. In spite of their appearance and although they may be adherent, these endometriomas can be rimmed with a sharp knife, the lesion can be shelled out, and varying amounts of ovarian tissue—50 per cent and more—can be salvaged and should function and stimulate the uterus to normal activity. A surprising number of patients with minimal remaining ovarian tissue will become pregnant and bear children.

In the patient who wants only conservative surgical treatment but in whom the pelvic endometriosis is extensive, with rectosigmoid adherent to the cervix and endometrial lesions present in the ovaries, back of the uterus, and elsewhere, there is still a possibility of controlling the disease temporarily. The uterus should be freed from the cul-de-sac and bowel and swung forward to expose the ovaries and sigmoid (figure 1). All sites of endometriosis that can be excised should be extirpated, including lesions of the ovaries. The bleeding should be controlled and the raw surfaces covered with atraumatic sutures (figure 2). When it occurs on the back of the cervix, a certain

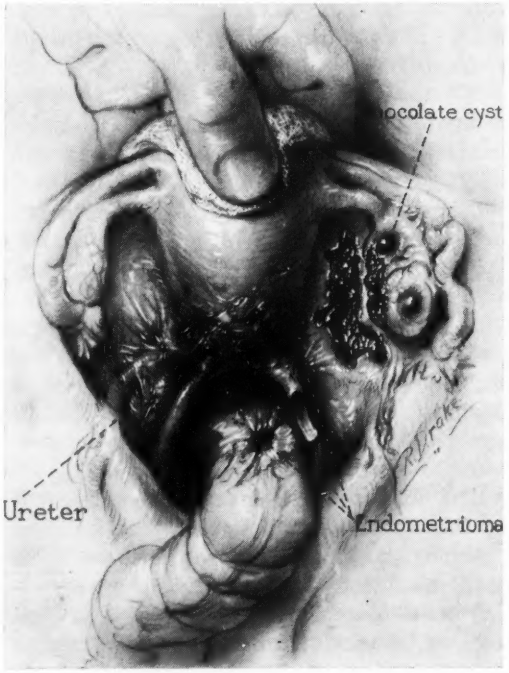


Figure 1. Extensive endometriosis of ovary, uterus, broad ligament, uterosacral ligament, and rectosigmoid. [Reproduced with permission from: Masson, J. C.: Surgical Significance of Endometriosis. Ann. Surg., 102: 819-833 (Nov.) 1935.]

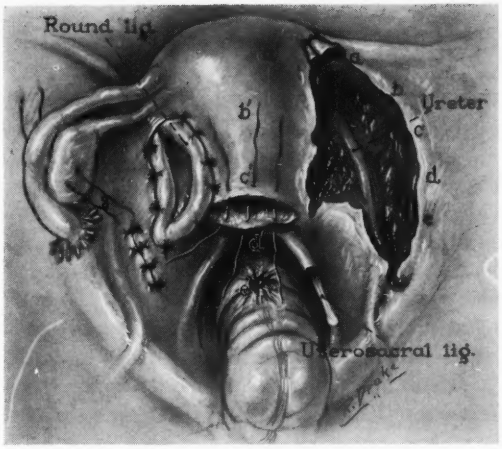


Figure 2. Salpingo-oophorectomy; excision areas of endometriosis; local coverage of raw surfaces where feasible; partial suspension of uterus with round ligament; suture of remaining ovary to pelvic rim to prevent adhesions. Letters indicate plan of covering raw area, with **a** to be sutured to **a′**, **b** to **b′**, and so on.

amount of endometriosis can be shaved off, but little can be done with the areas on the wall of the sigmoid. The critical problem is how the raw areas can be covered and the uterus and ovaries prevented from becoming adherent again. Any areas that can be covered with peritoneum or epiploic tags should be so treated. The anterior leaf of the broad ligaments and the round ligaments are usually not involved in the endometriosis, and it is frequently possible to break through the broad ligaments beneath the utero-ovarian vessels, dividing peritoneum near the tube and leaving all peritoneum attached to the round ligament. One or both round ligaments can be drawn beneath the utero-ovarian vessels to the back of the uterus; the loop of the round ligament is spread out to cover the raw surfaces of cul-de-sac, cervix, and even anterior sigmoid. The ovaries must be held on the pelvic brim with sutures to prevent them from becoming adherent in the region of the cul-de-sac, and any openings in the broad ligament should be carefully closed to avoid hernial openings. The uterus is held forward and upward by the round ligaments behind the fundus. This should not interfere with pregnancy if one takes place (figure 3).

In patients who have sufficient symptoms to necessitate operative measures but whom, because they are in their late 20's or 30's, the surgeon is reluctant to castrate, there is a good possibility of achieving symptomatic relief by removing the uterus alone, with preservation of one or both ovaries. When an endometrioma has to be resected from an ovary, if one-half or two-thirds of the ovary can be reconstructed, it will continue to function well and prevent menopausal disturbances. With the uterus removed, any small regions of endometriosis that remain do not seem to cause the trouble they did while the uterus was present. Of course, the external cyclic menstrual flow will be absent, so that the patient loses her conditioned expectation of pain, which is undoubtedly a major factor in her relief. Although the symptoms may continue or an endometrioma may again develop and necessitate a further operative procedure, this is a calculated risk; however, it is not an excessive risk when balanced against the beneficial effects of continuing ovarian function over a period of several years.

In the patient in her late 30's and 40's, the chief consideration for the surgeon should be the relief of pain. Of course, if there have been no complaints and the endometriosis is an incidental finding at laparotomy, then little need be done other than to excise what obvious areas can be easily removed from the ovaries. Symptomatic endometriosis, with dysmenorrhea, dyspareunia, painful defecation, and menometrorrhagia, requires a more definitive approach, and in general the surgeon must be ready to clean out the pelvis and reduce as much as possible the likelihood that a second operation will become necessary. It is a distressing fact that in many of these patients the objective findings in the pelvis at laparotomy do not correlate well with either the symptomatology or the results of the physical examination. Therefore, the minimal operative procedure must be determined in discussions with the patient and her family before operation, leaving the removal of additional tissue and organs to the surgeon's discretion. Since in the older patients the desire for further pregnancies is not a factor, and since hysterectomy offers the greatest chance for relief, this matter should be decided on before exploration. Too many patients have undergone laparotomy and, because the pelvic organs proved unremarkable, had no more de-

finitive procedure than the lysis of adhesions, only to have to undergo a second operation a few months later because of the continuation of symptoms.

Operations are occasionally necessary for endometriosis that is not causing pain or bleeding. Some endometrial lesions arise in an ovary and gradually grow to considerable size, giving few symptoms although on examination a large, tender ovarian mass is present. These tumors should be explored under two circumstances. The first is in the patient with an infertility problem and a persistently enlarged and possibly tender ovary. Exploration may show no other stigmata of endometriosis, but if the ovarian lesion is an endometrioma, the treatment is enucleation of the cyst, with preservation of the normal ovarian tissue. It is surprising how well a cyst, even one six to eight cm. in diameter, can be excised by rimming around the base and peeling out the lining. Arterial bleeders in the hilus should be ligated, and the ovary can then be reconstructed with atraumatic sutures. The endometrioma, which is always thin-walled and usually adherent, almost invariably ruptures while being mobilized or removed. The contents are a dark-brown, thick, mucoid liquid and inspissated bits of tissue. However, neither the rupture of the cyst nor the contamination of the pelvis by the contents should in any way influence the surgeon's decision as to what surgical procedure is necessary. The material is only broken-down blood and cellular debris, and the likelihood of implantation by any viable cells is extremely small.

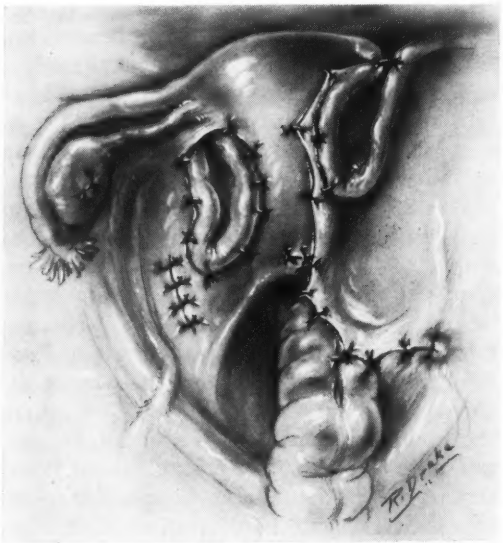


Figure 3. Utilization of peritoneum from anterior leaf of broad ligament along with round ligament to cover raw areas and suspend uterus.

The second situation in which a symptomless endometrioma requires exploration is in the patient old enough so that the presence of a malignant cyst is a distinct possibility. Such patients are generally more than 35 years old, and thus the problem of infertility has usually been settled. The surgeon therefore has much greater freedom to simply remove the ovary and cyst together, using his own judgment regarding salvage of the other pevlic viscera. Again, spillage of the contents of the cyst is no problem except that the older the patient the greater the possibility that there is an endometrial carcinoma arising in the lining of the cyst; multiple microscopic sections should be made from typical areas in all such cases. If a malignant lesion is present, total abdominal hysterectomy and bilateral salpingo oophorectomy is indicated.

Endometriosis involves the rectosigmoid or sigmoid in a significant percentage of cases when the lesion is at all extensive. There may be only a few bluish spots on the wall of the bowel or on epiploic tags, or the bowel may be adherent in all degrees behind the cervix or even up the entire posterior wall of the uterus. In the latter cases hysterectomy is generally necessary, and the surgical problem revolves about the separation of bowel from uterus without entering the lumen of the bowel. Sharp dissection often is necessary but is extremely tricky; when possible, the uterus should be grasped in the hand with the end or side of the thumb on the posterior wall against the adherent bowel. A steady pull on the uterus to elevate it and at the same time a squeezing pressure to work the thumb down the posterior wall will often reveal the cleavage plane better and more safely than sharp dissection. When the two organs are separated, hysterectomy and oophorectomy can readily be carried out. The raw surfaces on the rectosigmoid and sigmoid should be covered by suturing peritoneum or epiploic tags or

by bringing the sigmoid forward to the back of the vaginal vault and the back of the bladder; this will leave clean peritoneal surfaces and cause minimal formation of adhesions.

In the woman for whom the surgeon wishes to preserve ovarian function and possibly the uterus as well, the involvement of the bowel with endometriosis is a real problem. However, it is surprising how few true cases of intestinal obstruction are due to endometriosis. McGuff,[2] in reviewing the literature in 1946, found only 40 cases of obstruction and added 17 from the files of the Mayo Clinic. In most instances the symptoms due to endometriosis could be elicited only by considerable questioning; the chief complaints were due to mechanical obstruction. The diagnosis was made preoperatively in seven of 17 patients from the clinic, and in 12 of these patients resection of the bowel was necessary. The ovaries were sacrificed in all but two cases. The differential diagnosis between the endometrial lesion and cancer of the sigmoid is generally possible since the endometrial lesions begins on the external surface of the bowel and involves the mucosa late and minimally. Cancer of the bowel starts in the mucosa and usually is diagnosable on proctoscopic examination or x-ray of the colon; it grows outward, involving peritoneum at a later stage.

If there has been no constriction of the lumen of the bowel, it is generally safe to leave ovarian tissue behind, but when the caliber of the bowel is decreased, bilateral oophorectomy must be considered in order to stop the disease process. Constrictions of 50 per cent or even more will relax following oophorectomy, or they will give no further symptoms, and resection of the bowel will therefore not be necessary.

In patients who hope for another pregnancy or in whom the salvage of ovarian tissue is desirable, the surgeon must make the decision whether to perform local resection of the involved region of the colon. In two of the 17 cases reported by McGuff,[2] resection was done, with preservation of the ovarian and uterine tissues. With the antibiotics available today plus good preparation of the bowel, accurate anastomosis in two or three layers involves minimal risk, and even a proximal colostomy is seldom necessary. In several cases in the past year such an operation has been carried out and has been well tolerated. Ingalls[3] reported a series of 11 such cases at the meeting of the Minneapolis Surgical Society in 1960.

Endometriomas that require bowel surgery are generally palpable, and therefore the surgeon should have ample warning that a resection may be indicated. The lesion of the bowel tends to occur as a localized endometrioma rather than as widespread disease throughout the pelvis; thus, trauma, bleeding, and oozing are minimal. Administration of antibiotics should be continued in the postoperative period and fluids and solids by mouth withheld for two or three days, but with an uncomplicated convalescence, the hospitalization should average no more than about 10 to 11 days.

Endometriosis can occur also in other regions, such as in scars, in the vaginal wall, or in the umbilicus, but these are seldom problem cases for the surgeon, and relief of symptoms follows excision of the nodules.

SUMMARY

The possibility and desirability of excision of ovarian endometriosis in young women, with preservation of ovarian tissue, have been emphasized. In older patients hysterectomy and bilateral salpingo-oophorectomy is indicated for the relief of symptomatic endometriosis.

Resection of localized endometriomas obstructing the rectosigmoid, with preservation of ovaries and uterus, should be considered in young patients desiring further pregnancies. Localized adenomyomas in the uterine wall should be treated by local excision, but diffuse adenomyosis generally requires total abdominal hysterectomy. Fortunately it tends to occur in older patients in whom the loss of the uterus is relatively unimportant. □

REFERENCES

1. Israel, S. L., and Woutersz, T. B.: Adenomyosis: A Neglected Diagnosis. Obst. & Gynec., 14: 168-173, (Aug.) 1959.

2. McGuff, P. E.: Endometriosis as a Cause of Partial or Complete Bowel Obstruction. Thesis, Graduate School, University of Minnesota, 1946.

3. Ingalls, E. G.: Personal communication to the author.

Mayo Clinic and Mayo Foundation
Rochester, Minnesota

Medical and Surgical Treatment of the Undescended Testicle*

ROBERT J. PRENTISS, M.D.
CHARLES J. WEICKGENANT, M.D.
JAMES J. MOSES, M.D.
DONALD B. FRAZIER, M.D.

Scrotal placement of testicle without tension, by relative elongation of spermatic vessels avoiding vessel injury and dissection within the cord is described. This is the only reliable method.

MUCH HAS BEEN written in the last decade relative to this problem. Trends are becoming evident in both the medical and the surgical management. The great confusion of the past is being eliminated.

MEDICAL TREATMENT

Accurate diagnosis is primary in the management of any condition. Careful and repeated examinations of children presenting cryptorchidism are particularly necessary to exclude alternating cryptorchism, ectopic testis, or hypoplasia of the testis and cord. Visits and examinations on different days allow the child to overcome his alarm, and the doctor to develop rapport with the patient. Thus, cremaster retraction of the testicle due to fear is eliminated. The physical survey should be done in the usual manner, but in addition it is wise to examine the boy when his thighs are flexed on the abdomen; this manoeuvre will often produce a testicle in the scrotum hitherto undiscovered. Palpation of the inguinal area with the boy in a standing position and the physician behind the child is fruitful in discovering the testicle.

During the visits for search of the missing testicle, the parents are instructed in physical examination. This permits the parents to make observations of the happy child at home. The parents are advised to examine the child when he is relaxed in a warm tub. Such multiple observations will eliminate the error of endocrine or surgical treatment for the alternating cryptorchid.

The several visits of the child and parents to the doctor's office permit indoctrination of the parents. They are informed relative to the reasons for the undescended testicle, the mechanism of descent, possible absence or hypoplasia of the testicle, possible short spermatic vessels, and the probable presence of a hernia. The chances of a success in transplantation of the unpalpated testicle are discussed. The possible management in the case of bilaterally absent testicles is explained, should medical and surgical treatment fail to find normal testicles.

We think that no treatment of any type is indicated under the age of three years. Possible exceptions are pain in the inguinal area, torsion of the inguinal testicle, and a troublesome hernia. In general, action should be considered in the fourth or, at the latest, the fifth year of life. Treatment with anterior pituitary-like hormones is offered to the parents of the child, but it is not urged. It is explained to the parents that chorionic

*Presented by Doctor Prentiss at the 55th Annual Meeting of the Oklahoma State Medical Association, May 7-9, 1961.
From the Department of Urology, San Diego County Hospital, San Diego, California.

gonadotropins will increase the size of the genitalia, enlarge the cord structures, and perhaps improve the blood supply, but that descent of the testicle should be hoped for but not expected. If the testicle does not appear, surgical transplantation is advised in the fifth and not later than the sixth year.

Occasionally, in hypogenitalism with undescended testicle, enlargement of the genitalia does not occur with gonadotropins. Under such conditions, it may be desirable to use injections of testosterone propionate to induce genital growth. If subsequent investigation reveals bilateral agenesis or hypoplasia, maintenance doses of testosterone become necessary at puberty. In such cases, testosterone pellet implantation with a Kearns needle is advised. Testosterone does not promote descent of the testicle.

We employ chorionic gonadotropins (Antuitrin-S or Follutein) in doses of 300-500 international units, given intramuscularly two or three times a week, for a total of 3,600-9,000 international units in each of a maximum of two courses. The smaller dose is for the younger or small patients, while the larger is used for older boys or for those with bilateral cryptorchism and/or hypogenitalism. Some physicians use much larger doses. When it is indicated, testosterone propionate is used in doses of 25-50 milligrams, given intramuscularly twice weekly. With either of these hormones, careful watch for signs of precocious puberty or other side effects is necessary.

Certain special problems may arise in bilateral cryptorchidism. Hypogenitalism may be severe. Various degrees of the Froehlich syndrome may be present. True or pseudohermaphroditism may obscure the picture. These conditions require special hormonal studies and urologic examinations.

In the past, some have advocated the Ballenger suction treatment for cryptochism. We suspect that its success has occurred chiefly in the alternating type of undescended testicle. In any case, it has proven unsatisfactory in most hands, and is usually an unhappy experience for the child and the parents. We do not recommend it.

SURGICAL TREATMENT

Orchiopexy is indicated in bilateral or unilateral absence of the testis before puberty. The optimum time for the operation is in the fifth or sixth year of life. Operation may be needed earlier, for reasons of a troublesome hernia, pain in the area, or torsion of the undescended testicle. After puberty, transplantation of the testicle would be for cosmetic reasons only. At any time, exploration for undescended testicle may be indicated to establish the presence or absence of a gonad in the pelvis or inguinal area; to prove hypoplasia; or to repair a hernia. However, the casually-found undescended testicle in adults is better left alone. The possibility of a future malignant condition developing in the undescended testicle should never be a primary indication for operation. If one should use this as a primary indication, if consistency is maintained, the surgeon should be prepared to explore the peritoneum and retroperitoneum to the level of the renal hilum should the testicle not be found in the inguinal or pelvic area. Such a procedure would carry greater risk than the possible danger of a future malignancy in a testicle which might not even be present.

The ultimate reason for and the aim of the surgical technique of orchiopexy is to place a viable testicle in the scrotum, without tension and with a good blood supply and intact vas deferens. It should be placed there early enough in life to assure the best possible chance for active spermatogenesis to develop after puberty. There are six prime surgical anatomic points involved in the achievement of this aim. These are: (1) the frontal and sagittal spermatic surgical triangles; (2) the retroperitoneal space; (3) the lateral spermatic ligament; (4) the floor

---

A 1934 graduate of the University of Iowa School of Medicine, Robert J. Prentiss, M.D., has been certified by the American Board of Urology. In addition to his private practice, he is a member of the Executive Committee of the Department of Urology at the San Diego County Hospital in California.

Doctor Prentiss is a member of the Western Urologic Forum, the American Urological Association, the American College of Surgeons and the Western Section of the American Urological Association.

of the inguinal canal; (5) the inferior epigastric vessels; and (6) the dartos of the scrotum. Elsewhere, we have described and proven these anatomic points in detail.

From the frontal view, the spermatic vessels course obliquely downward and laterally from the renal area, to exit through the internal inguinal ring. From the same view, they then course medially and inferiorly to the external ring (figure 1A). When viewed from the sagittal plane, proximal to the internal ring the vessels angulate anteriorly and then course postero-inferiorly in the inguinal canal (figure 1B).

Throughout their course, the vessels are enveloped in the transversalis fascia. This fascia forms Gerota's fascia above, and below condenses to enclose the spermatic vessels and the ureter, forming the lateral spermatic ligament. This ligament attaches the vessels to the lateral abdominal wall. This structure is revealed only by separation of the spermatic vessels from the posterior peritoneum (figure 3).

Thus, the normal course of the spermatic vessels describes two chief triangles. When viewed from the front, the vessels' course encompasses two sides of a triangle from origin to the internal ring, and to the external ring. The third side extends from the origin to the external ring. Elimination of the two lateral sides will gain relative increase in length for the spermatic vessels. The area encompassed by the course of the spermatic vessels is named the frontal spermatic surgical triangle (figure 2A).

From the sagittal view, the vessels travel anteriorly from origin to the internal ring, and then postero-inferiorly to the external ring. The third side extends from the origin to the external inguinal ring. Dissection displaces the vessels posteriorly and eliminates this indirect pathway, gaining relative increase in length of the spermatic vessels. This area encompassed by the course of the vessels is called the sagittal spermatic surgical triangle (figure 2B).

Development of the retroperitoneal space is facilitated by division of the floor of the inguinal canal and the deep epigastric vessels in this area (figure 4). In the development of the retroperitoneal space, the spermatic vessels are separated from the peritoneum, revealing the lateral spermatic ligament. The complete dissection eliminates tortuosity of the vessels, and allows division of the lateral spermatic ligament (figure 5) and the displacement of the spermatic vessels medially, permitting exit directly from the external ring. The relative increase in length of the spermatic vessels is thus obtained (figure 6).

The steps in technique are dictated by these anatomic surgical principles. As in all surgical procedures, adequate exposure is important. A complete inguinal incision, with division of the floor of the inguinal canal and development of the retroperitoneum, allows complete visualization of the spermatic vascular system. Any attempt to lengthen the spermatic cord without this places the surgeon at the disadvantage of not having control of the whole problem:

The chief steps in the technique are:

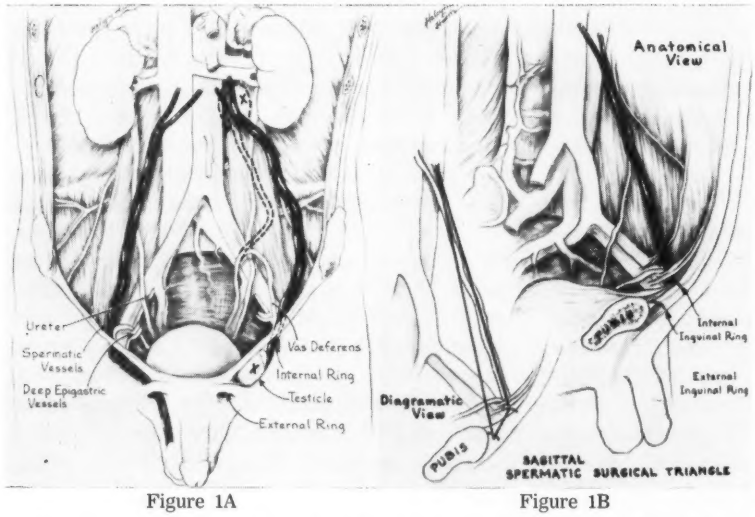
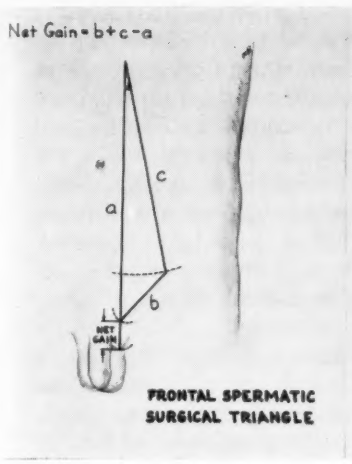
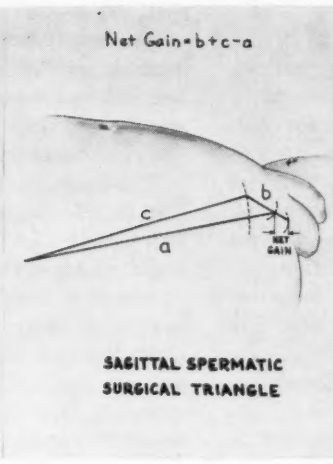


Figure 1A Figure 1B

Figure 1. A. General anatomy of spermatic vascular system in frontal view. Left testis undescended. B. Course of spermatic vessels in sagittal view. Insert: Sagittal triangle superimposed.





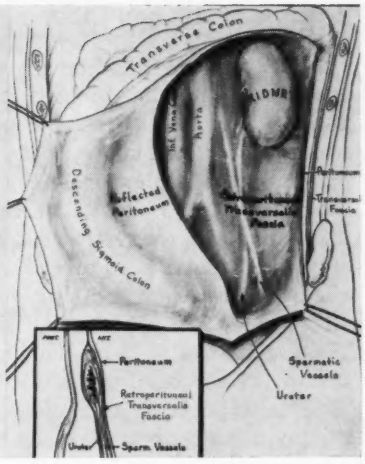


Figure 2A

Figure 2B

Figure 3

Figure 2. A. Frontal spermatic triangle superimposed on course of left spermatic vessels. B. Sagittal Triangle. Conversion of B and C to A in both triangles demonstrates relative length gain.

Figure 3. Retroperitoneum in frontal view. Spermatic vessels enveloped by transversalis fascia. Insert: Same in lateral view.

1) Skin incision from the anterior superior spine of the ilium to the entrance of the scrotum; external oblique fascia completely opened.
2) Division of the internal oblique muscle lateral to the internal ring.
3) Dissection of cord, if present, from above downward, preserving the ilioinguinal nerve.
4) Reflection of the peritoneum from the posterior surface of the floor of the inguinal canal.
5) Division of the transversalis fascia and inferior epigastric vessels in the floor of the inguinal canal.
6) Development of the retroperitoneal space, to the kidneys if necessary.
7) Separation of the hernia sac and posterior peritoneum from the spermatic vessels and vas deferens by elevation of the peritoneum with saline solution.
8) Closure of the hernia sac.
9) Development and division of the lateral spermatic ligament, permitting medial and posterior displacement of the spermatic vessels, eliminating the two sides of the surgical triangles.
10) Occasionally, dissection of the vas deferens to the seminal vesicle is necessary.
11) Division of the dartos of the scrotum to eliminate contractility, allow low fixation, and increase the size of the scrotum.
12) Placement of the testicle in the scrotum through the external ring only; fixation in the scrotum by suture through the skin attached to a rubber band.
13) Repair of the abdominal wall in layers, eliminating the internal ring completely.
14) Avoid endangering the blood supply by dissection within the cord itself.
15) The operation is impossible without long retractors of the Deaver type and long hemostats.

If the surgical anatomic principles and techniques, as defined, are applied properly, the testicle should be in the depths of the scrotum without tension, and without injuring the blood supply. If the testicle is not in the scrotum, then nature has not made the blood vessels long enough.

There are other techniques than ours. The Bevan method is the most commonly used. This relies on elongation of the spermatic cord through dissection primarily in the inguinal canal, and by dissection within the cord itself to eliminate so-called "adhesions." It fails to take advantage of the shortest-distance-between-two-points principle. It injures the blood supply. It does not get adequate length. We mention it only to condemn it.

The Torek is another popular method, which really admits defeat if it is necessary at all. If one follows the retroperitoneal dissection as outlined above, there is no need to place a testicle under tension by thigh fascial fixation. If the dissection is inadequate, then, of course, the testicle can be held down only with tension such as in fascial fixation. Such a situation will produce ischemic atrophy in many testicles. However, the Torek principle is indicated to increase the size of the scrotum, when this is necessary.

Certain special situations may arise. Routine exploration may reveal no testicle. In this situation, the retroperitoneum should be explored thoroughly to the brim of the true pelvis or above. One should look for the vas deferens, since it must traverse the true pelvis regardless of the location of the testicle. If the vas is found, the testicle will be close by, or will be absent or hypoplastic. However, rarely a testicle may be present without a vas deferens. If pelvic exploration is unproductive, the peritoneum should be opened adequately to explore on both sides of the colon to the renal level. If no evidence of a testicle is found, the exploration should go no further.

If no testicle is found, the placement of a previously-prepared prosthesis should be considered. We recommend polyethylene as the best substance for artificial testicle manufacture. Any machinist can lathe and polish to specification.

If a patient is known to have a single testis and this is impossible of scrotal transplant, it had better be left in the canal or abdomen, since endogenous testosterone is more advantageous for the patient than is elimination of the risk of cancer.

If the boy has one adequate scrotal testicle and its mate is impossible of scrotal transplant, it had best be removed. This is advised because a canal location could well be painful and subject to injury, and would not be spermatogenic. Some, however, would tend to leave this testicle in the canal. If it could only be left in the abdomen, it certainly should be removed. Those subscribing completely to the theory of the increased danger of future malignancy will always remove abdominal and inguinal testes.

Surgical transplantation of the testicle by our method, as described, has given us uniformly good results. There has been no incidence of direct or indirect hernia after our type of dissection. Our method of dissection should give an average increase in length of

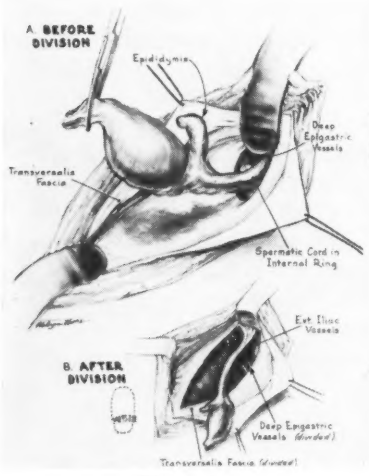


Figure 4

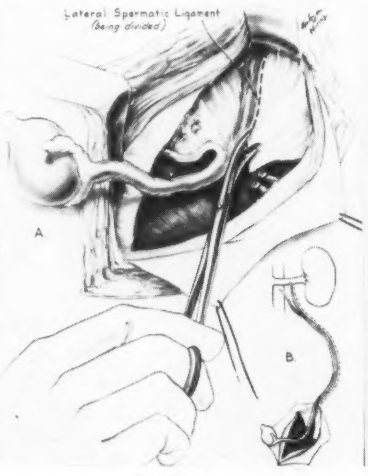


Figure 5

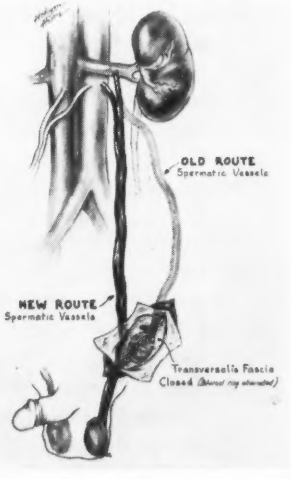


Figure 6

Figure 4. A. Inguinal canal showing posterior wall (transversalis fascia) and deep epigastric vessels. B. Same after division of epigastric vessels and floor of canal.

Figure 5. Medial displacement of vessels permitted by division of lateral spermatic ligament. Insert: Incision may be carried to kidney if necessary.

Figure 6. View of retroperitoneum demostrating direct course of vessels to scrotal testis after retroperitoneal dissection.

the spermatic cord of 6.5 centimeters. If extensive dissection of the vas deferens is done as well, an additional 2.5 centimeters of length will be obtained. This is four times the length obtained by the routine classical dissection confined to the inguinal canal.

SUMMARY

We think that undescended testicle should always receive treatment. Medical treatment involves mainly proper examinations and diagnosis, with indoctrination of the parents. Hormone treatment may help indirectly in the subsequent surgical correction of the problem. However, hormone treatment should not be expected to be of value in the promotion of the descent of the testicle in any but a few. Treatment, both medically and surgically, should begin sometime between the third and fifth year, and never later than the sixth year. Our technique of adequate incision and wide retroperitoneal dissection with displacement of the cord medially, eliminating the sides of the spermatic surgical triangles and lateral spermatic ligament, permits scrotal transplantation without tension and without injury to the blood supply or vas deferens of the testicle. □

BIBLIOGRAPHY

Anson, B. J., and Maddock, W. G.: Callander's Surgical Anatomy, 3rd Ed., Philadelphia: W. B. Saunders Co., 1952.

Barzilay, B.: Some new observations on the problem of cryptorchidism. Harefuah, 51: 173-180, 1957.

Bevan, A. D.: Surgical treatment of undescended testicle: Further contribution. J.A.M.A., 41: 7-8-724, 1903.

Bunce, Paul L.: Diagnosis of undescended testes: Letter to editor. Pediatrics, 27: 165-166, 1961.

Clayworthy, H. W., and associates. The inguinal hernia, hydrocele and undescended testicle problem in infants and children. Postgrad. Med., 22: 122-131, 1957.

Dodson, A. I.: Urological Surgery, 3rd Ed. St. Louis: C. V. Mosby Co., 1956.

Florence, T. J.: Surgical approach to cryptorchidism. Trans. Southeastern Sec., A.U.A., pp. 89-98, 1957.

Fowler, R., Jr., and Stephens, F. D.: The role of testicular vascular anatomy in the salvage of high undescended testes. Austral., N. Zealand J. Surg., 29: 92-106, 1959; abstracted in Surg., Gyn. & Ob., 110: 164-172, 1960.

Goss, C. M.: Gray's Anatomy, 26th Ed. Philadelphia: Lea and Febiger, 1954.

Grant, J. C. B.: Atlas of Anatomy. Baltimore: The Williams and Wilkins Co., 1951.

Gross, R. E., and Jewett, T. C., Jr.: Undescended testis. J.A.M.A., 160: 634-642, 1957.

Hallman, N., and assocates: Undescended testis, indication and results of operation. Ann. Chir. et Gyn., 46: 22-35, 1957.

Hand, J. R.: Treatment of undescended testis and its complications. J.A.M.A., 164: 1185-1191, 1957.

Keeley, John L.: Orchiopexy. Arch Surg., 79: 994-998, 1959.

Kieswelter, W. B.: Undescended testicles. Gen. Practitioner, 19: 95-100, 1959.

Kimbrough, J. C., and Reed, J. F.: Treatment of undescended testis. A.M.A. Arch Surg., 75: 898-905, 1957.

Koop, C. E., and Minor, C. L.: Observations on undescended testis. A.M.A. Arch. Surg., 75: 898-905, 1957.

Lattimer, J. K.: Scrotal pouch technique for orchiopexy. J. Urol., 78: 628-632, 1957.

Laughlin, V. C.: Orchidofunicolysis. J. Urol., 77: 39-46, 1957.

Lewis, L.: Cryptochism. J. Urol., 60: 345-356, 1958.

Lemeh, C. N.: A study of the development and structure relationships of the testis and gubernaculum. Surg., Gyn. & Ob., 110: 164-172.

Linke, C. A., and Kiefer, J. H.: Occurrence of testis tumor in undescended testes. J. Urol., 82: 347-351, 1959.

Minor, C. L.: The empty scrotum. Pediat. Clin. N. A., 6: 1137-1146, 1959.

Patton, J. F., Seitzman, D. N., and Zone, R. A.: Diagnosis and treatment of testicular tumors. Am. J. Surg., 99: 525-532, 1960.

Prentiss, R. J., and associates: Medical and surgical treatment of cryptorchidism. A.M.A. Arch Surg., 70: 283-290, 1955.

Prentiss, R. J., and associates: Medical and surgical treatment of cryptorchidism. A.M.A. Scientific Exhibits, Nos. 766-770, 1955 (annual meeting).

Prentiss, R. J., and associates: Undescended testis: Surgical anatomy of spermatic vessels, spermatic surgical triangles and lateral spermatic ligament. J. Urol., 83: 686-691, 1960.

Schaffer, J. P.: Morris' Human Anatomy, 10th Ed. New York: Blakiston Co., 1942.

Spalteholz, W.: Hand Atlas of Human Anatomy. Philadelphia: J. B. Lippincott Co., 1937.

Torek, F.: Orchiopexy for undescended testicle. Ann Surg., 94: 97-110, 1931.

Utz, D. C.: Surgical management of cryptorchidism. Surg. Clin. N. A., 39: 995-1005, 1959.

Warren, J., and Green, R. M.: Warren's Handbook of Anatomy. Boston: Harvard University Press, 1937.

3415 Sixth Avenue, San Diego 3, California

Chemotherapy in Tuberculosis

"I have a recent report by Doctor William S. Middleton, medical director of the Veterans Administration, that the VA has closed down 11 tuberculosis hospitals in ten years. In 1950 there were 21 hospitals with 15,690 beds. Today there are only ten TB hospitals with 9,037 beds. . . . The institutions for tubercular veterans maintained by taxpayers have been cut by more than 50 per cent, with all that means in savings to all of us. And the primary reason for this decline in the cost of medical care for tuberculosis is drugs. Doctor Middleton attributes the VA record to new and specific drugs in TB chemotherapy produced by our ethical drug industry."—Austin Smith, M.D., President, Pharmaceutical Manufacturers Association.

The Cardiac Patient and Heart Surgery

LOYAL L. CONRAD, M.D.*

ALTHOUGH the question "how well can a patient with heart disease tolerate surgery?" is often asked, its corollary "what does the patient have to tolerate?" is probably more to the point. When phrased in this fashion we think first of those demands placed on the heart by general surgical procedures, then of those hazards special to the cardiac patient. Since nearly all general anesthetic agents are myocardial depressants[1] the heart must maintain an adequate output despite declining function. Studies conducted on patients without cardiac disease have shown that the cardiac output declines after the induction of anesthesia and is not re-established at normal levels for several days postoperatively.[2, 3] Thus, it may be that cardiac needs are not as great as ordinarily presumed. However, similar studies have not been conducted on cardiac patients to see whether their response is in normal range. What constitutes cardiac "demand" and an "adequate" output remains unanswered. Obviously, the less the cardiac reserve preoperatively the less adequately will the heart function as a pump during the procedure. Hence, patients with overt evidences of congestive heart failure are poorer risks, the risks increasing proportionately to the degree of failure. The presence of an enlarged heart without other evidences of failure usually means lessened reserve and increased surgical risk.

Shock, hemorrhage or otherwise, is a special hazard to the cardiac patient because the resultant decrease in coronary perfusion leads to further decreases in cardiac output and attendant hypoxia and acidosis, and may culminate in an irreversible state or terminal rhythm disturbance. Patients with known coronary artery disease manifested by angina or myocardial infarction are particularly susceptible and the risks of any major procedure are 10-15 per cent. Likewise the surgical risk is somewhat increased in patients with hypertensive disease because of the associated coronary atherosclerosis. Stimulation of the sympathetic nervous system in response to the administration of the anesthetic agent, even in the absence of shock or hemorrhage, may play a role in triggering off serious arrhythmias in patients with coronary artery disease; myocardial oxygen "wastage" is a characteristic epinephrine effect.

The final determinant as to whether or not to subject the cardiac patient to surgery consists of weighing the benefits of surgery against the risks; it may be unimportant when a lifesaving procedure is contemplated or it may be all-important when the possible benefits of surgery may be considered trivial. □

*Associate Professor of Medicine, University of Oklahoma Medical Center Chief, Cardiovascular Disease Section, Veterans Administration Hospital, Oklahoma City, Oklahoma.

REFERENCES

1. Price,, H. L.: General anesthesia and circulatory homeostasis. Physiol. Rev. 40:187, 1960.
2. Snyder, J. C.: The cardiac output and oxygen consumption of nine surgical patients before and after operation. J. Clin. Invest. 17:571, 1938.
3. Heilbrunn, A., and Allbritten, F. F.: Cardiac output during and following surgical operations. Ann. Surg. 152:197, 1960.

OSMA JOURNAL/medical center

Dean's Message

During the past few years an awareness of the need of continuing education in all walks of life has become more acute. Recently Oklahoma has had its attention focused on the importance of continuing education in our community by a Kellogg Foundation grant for such a center of learning on the Norman campus.

Continuing or postgraduate medical education for physicians is as old as the practice of medicine itself. Physicians have always been recognized as a group of individuals who continue to learn and gain experience, even after the completion of formal or required courses, by individual efforts such as reading, group conferences, seminars, etc. So it continues today that a multitude of opportunities along these lines are provided not only by medical centers such as ours through formal postgraduate programs but also by individual hospitals, medical societies, specialty groups and other organizations.

Physicians who read *The Journal* are well aware of the many facilities at hand for keeping abreast of developments in medicine. In this column I would like to emphasize some of the opportunities at the Medical Center which are also available to the physicians of our state and to assure each of you that you are welcome to be with us for any events of your choosing.

More than 100 regularly scheduled teaching events are held at the Medical Center each week, Monday through Saturday, and include sessions produced by the individual pre-clinical and clinical departments.

Of particular interest to the practicing physician are seminars, conferences, grand rounds and ward walks of the various departments and the combined sessions which are given jointly by the clinical departments. One of the newest and most interesting of these is the inter-departmental conference each Tuesday from 12:30 to 1:30 p.m. About 18 other conferences are held each day. Examples, selected at random, are listed below as illustrative of the opportunities:

Gross pathology conference, 2 p.m., Monday; Tumor clinic, 1:30 p.m., Tuesday; Medical grand rounds, 8 a.m., Wednesday; Pediatric grand rounds, 8 a.m., Thursday; Medical-surgical conference, 1:45 p.m., Friday; Surgery grand rounds, 8 a.m., Saturday.

A calendar of all events is published weekly. Copies may be obtained by writing the Office of Public Relations, University of Oklahoma Medical Center. □

Mark R Everett

The Peutz-Jeghers Syndrome

E. A. FRANKEN, M.D.

The Peutz-Jeghers syndrome is an uncommon cause of intestinal polyposis, but with an external manifestation, mucocutaneous pigmentation.

IN 1921 A NEW syndrome was described by a Dutch physician, J. L. A. Peutz, consisting of a combination of oral mucocutaneous pigmentation and multiple polyposis of the gastrointestinal tract, existing in several members of a family.[1] There is an earlier report of what is probably this syndrome in identical twins from Hutchinson in 1896, showing the typical pigment seen in this condition, and a further note that one of the twins later died of intussusception.[2] Sporadic reports are found in the world literature following this, but it remained for Jeghers and his colleagues in 1949 to gather all previous reports, define the entity more clearly, and give it a well known status.[3] Jeghers initially commented on the existence of perioral pigmentation with intestinal polyps in siblings in 1944,[4] but it was not until the report of 1949 that the disease was recognized as a distinct clinical entity.

The Peutz-Jeghers syndrome, as it is now called, is not as rare a disease as was first thought. As with many other "new" syndromes, a wealth of new cases has been reported since the definitive description, so that a total of approximately 125 can now be found in the world literature.[5-18] The eponym of Peutz-Jeghers seems to have been first used in 1954, and since that time almost all authors have referred to the entity by that name.[19]

The Peutz-Jeghers syndrome must be differentiated from familial polyposis of the colon, a more common disease, and also of an hereditary nature. In familial polyposis of the colon polyps are restricted to the colon, and are extremely apt to undergo malignant degeneration.[21] In the Peutz-Jeghers syndrome polyps are present throughout the entire gastrointestinal tract, and are not likely to become malignant.[6, 10]

The etiologic basis of this syndrome is obscure, but genetic factors are thought to be of some importance. In the latest survey of this condition approximately 55 per cent of the cases show a positive family history, i.e., with one of the parents affected, and often one or more siblings.[6] The frequency of this type of family history would suggest that inheritance is due to a mendelian dominant gene of rather low penetrance, with rather frequent cases arising as sporadic, spontaneous mutants.[11] There seems to be no predominance of one sex. A typical family tree would be such as this reported by Jeghers[3] (table 1).

Although the Peutz-Jeghers syndrome is genetically determined, the condition is uncommonly detected at birth. Pigmentation usually appears in infancy or early childhood, with gastrointestinal symptoms at some time thereafter. However, some patients apparently have no clinical manifestations until old age, the oldest reported case being at age 77, with onset of symptoms and pigmentation only two to three years previous to this.[16]

The pathologic findings in this syndrome consist of two essential and distinguishing characteristics: intestinal polyposis and pig-

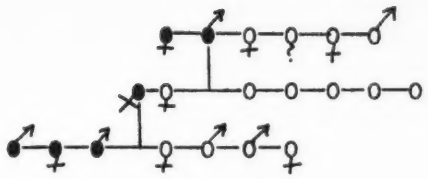


TABLE 1.

• Members of family with pigmentation and polyps.

0 Members of family without pigmentation of polyps.

Genealogic table of a family with pigmented spots and polyposis. (Adopted from Jeghers, 1949.)

mentation of the skin and mucous membranes.

In the description by Jeghers melanin pigmentation was mentioned on the buccal mucosa, around the lips, and on the palms, with almost 100 per cent of the cases showing spots on lips and palms.[3] As more cases have accumulated, it has become evident that the spots may be in any one of these locations, and no one of them is necessarily found in all cases. As can be noted from table 2, the pigmented spots have been noted on the face, forehead, nasal mucous membranes, lips, gums, hard and soft palates, toes, and fingers, the most common location being around the mucocutaneous junction of the mouth.

Grossly the lesions are small (1-3 mm) discrete melanin spots, with occasional areas of coalescence. Some authors describe these as "ephelides inversae," i.e., inverse freckles, [3, 9] because of the fact that freckles usually occur in fair skinned persons, are prominent in sun-exposed areas (bridge of nose, forehead), are uncommon around the mouth, and tend to wax and wane according to the season. The melanotic macules in the Peutz-Jeghers syndrome are usually in persons of dark complexion, are more common around the mouth than on the forehead and nose, and stay of the same intensity throughout the season.

Face	Lips	Gums	Buccal Mucosa	Hard Palate	Soft Palate
18	21	9	20	5	2

Fauces	Nasal Mucosa	Other
1	6	Palms, 6; Forehead, 2; Toes and Soles of Feet, 2

Distribution of Pigmentation in 21 cases. (Adopted from Dormandy, 1957.)

TABLE 2.

Pigmentation similar to that seen in the Peutz-Jeghers syndrome can be noted in Addison's disease, and, to a certain extent, in normal members of the colored races. Some authorities believe that the pigmentation of the Peutz-Jeghers syndrome has no obvious distinguishing characteristics to differentiate it from other conditions giving oral melanosis;[22] others remark that the location, distinct boundaries of the macules, and the intensity of the melanin deposition make them clinically separable from other conditions causing oral melanosis.[3, 9, 23] Microscopically and histochemically these seem to be only discrete areas of melanin deposition, with some increase in melanocytes, but no obvious distinguishing characteristics.[16] In Jeghers' cases some of the biopsied skin lesions showed stratification of melanin in distinct columns, interspersed with columns free of pigment.[3] However, subsequent studies have not confirmed this observation, and this is now thought not to be a necessary finding in the histology of the lesion.[16]

The gastrointestinal involvement in the Peutz-Jeghers syndrome consists of polyps scattered throughout the length of the gastrointestinal tract. These may range in number from three or four to literally thousands.[6] Location is most commonly in the small intestine, but other areas are very frequently involved, as is seen in table 3.[9]

The size of the polyps is variable, depending on the stage of the individual polyp. Many surgical specimens have shown one large polyp causing intussusception, surrounded by hundreds of miscroscopic polyps, although the surrounding mucosa might appear grossly normal.[9] The size of the individual polyp does not appear to be static,

---

E. A. Franken, Jr., M.D., graduated from the University of Oklahoma School of Medicine in 1961. He is now interning at Saint John's Hospital in Tulsa, Oklahoma. He is a member of Alpha Omega Alpha and the Student AMA.

Stomach	Duodenum	Jejunum	Small Intestine (no further specification)
4	3	8	11

Ileum	Colon	Rectum
8	9	11

Distribution of Polyps in the Gastrointestinal Tract. (Adopted from Dormandy, 1957.)

TABLE 3.

but subject to growth at any time, without any known stimulus.[9] Histologically, the polyps seen in the Peutz-Jeghers syndrome are noted to be somewhat different from the usual intestinal polyp.[6, 7] Most of these will show distinct cell types of all the cells found in that level of the gut, as well as the frequent appearance of smooth muscle fibers. For example, duodenal polyps usually show Brunner's glands, and those of the stomach both parietal and chief cells. This is in contradistinction of the usual intestinal polyp, which shows only one cell type, and has no muscular element.

Because of the histological nature of these growths, some observers now think that rather than being true neoplasms (as most intestinal polyps are) the growths in Peutz-Jeghers disease represent a genetic defect in formation of the intestinal mucosa, so that unusual aberrations of morphology and numbers of cells are allowed.[6, 7] These peculiar forms of intestinal mucosa resemble true neoplastic growth anatomically, but actually represent only a type of hamartoma.

Most histologically examined polyps in this syndrome have been microscopically benign. However, about 15 per cent of the patients coming to operation have been classified as having malignant polyps, on the basis of carcinoma in situ or local invasion of the muscularis.[8, 13] This can be contrasted with familial polyposis of the colon, in which malignant degeneration is present in 30 to 50 per cent of the patients coming to operation because of clinical symptomatology.[24] An unusual aspect of this reported malignancy is that there is not one well-documented case of any further progression of a supposed malignant degeneration of a polyp in this disease to further spread or death.[6, 9] This contrasts sharply with the usual course of cancer of the small intestine, in which the average survival is about 18 months.[25]

In rather careful reviews of malignancy in this condition, investigators report that the diagnosis of carcinoma is most often a cytological diagnosis, with hyperchromatism, unequal and increased size of cells, and nuclear changes.[6, 7, 9, 10] The cases which do show invasion of neoplastic tissue show limitation of this process to the muscularis with no involvement of serosa, surrounding tissue, lymph nodes or distant metastases. Because of the absence of these invasive properties, noted with cancer as it is usually thought of, these investigators doubt that the changes in the polyps in the Peutz-Jeghers syndrome actually represent malignancy. In two-thirds of the malignancies reported in the Peutz-Jeghers syndrome, the location of the carcinoma is in the ileum.[8]

It might be noted that naso-pharyngeal polyps were reported in the original cases of Peutz,[1] and have been noted from time to time since then. Other polypoid lesions associated with cases of this syndrome include bladder polyps and bronchial adenomatosis,[10, 26] but their occurrence is so uncommon that they are thought to be incidental findings.[9, 10]

The clinical course of the Peutz-Jeghers syndrome can again be divided into two areas, changes in skin and mucous membranes and difficulties with the polyps of the gut.

The melanin spots have infrequently been noted at birth, but seem to appear most often in infancy and early childhood.[9] However, some cases have been reported in which pigmentation did not appear until 75 years of age.[16] The pigmentation typically occurs in persons with dark complexion, but many cases have been reported in fair skinned persons.[10] The distribution and character of the lesions have been described above.

The symptoms referable to gastrointestinal polyposis are largely those of small bowel intussusception.[15] Most patients suffer from this complication intermittently for years without definitive diagnosis. It is of interest, and pediatric importance, that the diagnosis of Peutz-Jeghers syndrome in one study[15] was made in less than 15 per cent

of cases before age ten. Sixty-five per cent of the cases found were between the ages of ten and 29 years with almost equal distribution on the two decades. However, the age of onset of symptoms was prior to age ten in 33 per cent and between the ages of ten and 19 in 36 per cent. Duration of symptoms before diagnosis was made varied from immediately to fifteen years or more. This is summarized in table 4.

The symptoms of intussusception may disappear spontaneously with dislodging of the polyp; or, if there is no release of the polyp, intestinal obstruction and ultimately gangrene may intervene. Other symptoms less frequently encountered as presenting complaints include melena of unexplained etiology, chronic blood loss, prolapsed rectal polyp, vague bowel disturbances, and even failure to thrive.[9] As can be seen from table 5, most of the symptoms are related to intussusception, with intestinal colic being the most frequent symptom.

It would seem from the cases studied so far that the pigmentation and polyps probably appear at about the same time; this is especially evident in cases arising in older persons with the onset of pigmentation and symptoms of gastrointestinal disease almost simultaneously. But no one knows definitely that this is true in all cases, in that polyps are often silent, and micropolyps could be present for years before developing into those of clinically significant size.[9]

It would also seem that this disease has a forme fruste, in which the typical pigmentation appears, but no polyposis can be found. Jeghers, in his initial report,[3] reported one such individual; Dormandy,[9] in 21 cases under his observation, noted three such patients.

The presence of malignant degeneration in the polyps seems to have no clinical correlation to clinical symptoms or duration of

AGE RANGE	AT DIAGNOSIS	AT ONSET OF SYMPTOMS
0-9	7	15
10-19	19	16
20-29	15	7
30-39	7	5
40 & Over	4	2
Not Known	0	7

Age of Patients with Peutz-Jeghers Syndrome. (Adopted from Stanley and Schwarz, 1957.)

TABLE 4.

Acute Abd. Episode in Childhood	Attacks of Intest. Colic, Usu. Vomiting	Chronic Bowel Disturbance	Hematemesis
8	16	12	3

Melena	Rectal Bleeding	Chronic Blood Loss	Borborygmi	Wt. Loss	Failure to Thrive
3	9	7	6	11	4

Indigestion, Dyspepsia	Dull, Non-Colicky Abd. Pain	Prolapsed Rectal Polyp	Prolapsed Rectum
4	6	3	3

Incidence of Clinical Symptoms in 21 Cases. (Adopted from Dormandy, 1957.)

TABLE 5.

the illness; the diagnosis of carcinoma is usually made incidentally on surgical specimens resected for intussusception.

The symptomatic course of the Peutz-Jeghers syndrome is usually one of intermittent, acute episodes of intestinal obstruction. However, some cases have been found in investigation of families with one symptomatic member, patients in whom pigmentation and polyps are found, but have no clinical symptomatology.[9] The prognosis of the disease is most likely related to the frequency and severity of the acute complication, rather than to the disease itself. An exact estimate of age at death, duration of symptoms before death, and incidence of acute complications cannot be given at this time.[6] Observers have noted that the complications are associated with a higher mortality in children, as would be expected.[9]

As it has been mentioned before, the incidence of malignant degeneration of the polyps is indefinite, and many authorities believe that this does not occur.[6, 9] In any event, what has been described as carcinoma of the small bowel does not seem to affect the ultimate prognosis of the patient.[15]

Diagnosis of the Peutz-Jeghers syndrome is actually rather simple, if one will remember that the disease exists. History will usually indicate bowel disturbances of long duration although a more acute history may present. Family history is important in diagnosis, and several cases have been diagnosed by investigating members of an affected individual's family. Physical exami-

nation shows the oral melanosis as mentioned before, while abdominal findings are dependent upon the type of complication, if any, encountered at that particular time. Radiographic examination is a very important tool in demonstrating the existence of the polyps, but may well be negative, even in the presence of rather large polyps.[15] Any patients suspected of the Peutz-Jehgers syndrome deserve gastroscopy and sigmoidoscopy, and these can be rewarding procedures, especially when roentgenograms are nondiagnostic.[15]

Treatment of the Peutz-Jeghers syndrome can be divided into that of the acute complication, along with long term surgical therapy and medical follow-up. Immediate treatment is required for intussusception, at which time resection of the polyps involved and intestine itself, if nonviable, is indicated.[15] Some authors[27] have advised multiple enterotomies at some stage of the disease, with resection of all large polyps.

A few authorities[8] advocate radical resection in the ileum, where most cancers have arisen, but confine surgical therapy in other areas to more conservative measures. It is to be stressed that polyps can appear at any time, presumably arising from micropolyps, and that the disease is widespread and apt to show recurrence.[9] Because of this most writers on the subject feel that surgical therapy is of necessity conservative.

A most important part of the therapy in this disease is periodic follow-up, because of its chronicity and frequent recurrence of polyps.[6, 9] Another element in follow-up is case finding in relatives of patients with this diagnosis.[6, 15]

SUMMARY

1) A syndrome consisting of oral melanosis and intestinal polyposis was described by Peutz in 1921.

2) The disease is probably of genetic origin, with sporadic cases as well.

3) The clinical course of the entity is seen to be chiefly the appearance of mucocutaneous pigmentation and frequent bouts of intussusception.

4) Diagnosis can be made by noting the typical pigmentation and demonstrating polyps of the gastrointestinal tract.

5) Prognosis and treatment are not well defined at this time, but current opinion that this is not a premalignant condition would tend to suggest conservative therapy with close follow-up throughout life. □

BIBLIOGRAPHY

1. Peutz, J. L. A.: Very Remarkable Case of Familial Polyposis of Mucous Membranes of the Intestinal Tract and Nasopharynx Accompanied by Peculiar Pigmentation of Skin and Mucous Membrane. Ned. Mschr. Geneesk, 10: 134 (1921). Quoted by Jeghers, 1949.

2. Hutchinson, J.: Notes of Demonstrations at the Clinical Museum: Pigmented Spots on the Lips and Mouth in Twin Sisters. London Archives of Surgery, 7: 290 (1896). Quoted by Jeghers, 1949.

3. Jeghers, H., McKusick, V. A., and Katz, K.: Generalized Intestinal Polyposis and Melanin Spots of the Oral Mucosa, Lips, and Digits: A Syndrome of Diagnostic Significance. New England Journal of Medicine, 241: 993-1005, 1031-1036 (1949).

4. Jeghers, H.: Medical Progress: Pigmentation of the Skin. New England Journal of Medicine, 231: 88-100, 122-136, 181-189 (1944).

5. Bartholomew, L. G., Dahlin, D. C., and Waugh, J. M.: Intestinal Polyposis Associated with Mucocutaneous Melanin Pigmentation. Gastroenterology, 32: 434-451 (1957).

6. . . . . Intestinal Polyposis Associated with Mucocutaneous Pigmentation. New York State Journal of Medicine, 60: 1797-1801 (1960).

7. Bartholomew, L. G., and Dahlin, D. C.: Intestinal Polyposis and Mucocutaneous Pigmentation (Peutz-Jeghers Syndrome)—Further Comments and Report of an Additional Case. Minnesota Medicine, 41: 848-852 (1958).

8. Berkowitz, S. B., Pearl, W. J., and Shapiro, N. H.: Syndrome of Intestinal Polyposis with Melanosis of the Lips and Buccal Mucosa; A Study of the Incidence and Location of Malignancy. Annals of Surgery, 141: 129-133 (1955).

9. Dormandy, T. L.: Gastrointestinal Polyposis with Mucocutaneous Pigmentation (Peutz-Jeghers Syndrome). New England Journal of Medicine, 256: 1093-1102, 1141-1146, 1186-1190 (1957).

10. . . . . Peutz-Jeghers Syndrome. Proceedings of the Royal Society of Medicine, 51: 426-428 (1958).

11. Freeman, J. T., and Radvin, I. S.: Polyps and Pigmentation in the Peutz-Jeghers Syndrome. New England Journal of Medicine, 253: 958-961 (1955).

12. Oldfield, J.: Polyposis of the Small Intestine with Pigmentation of the Face, Buccal Mucosa, and Digits. British Journal of Surgery, 47: 578-579 (1960).

13. Richterich-Van-Baerle, B. W., Byrnes, W. W., Moriss, W. G., and Schell, S.: Intestinal Polyposis and Pigmentation: Case Report. Annals of Internal Medicine, 45: 707-717 (1956).

14. Rohrs, L. C.: Intestinal Polyposis and Pigmented Spots of Lips. Journal of the American Medical Association, 165: 208-210 (1957).

15. Staley, C. J., and Schwarz, H.: Gastrointestinal Polyposis and Pigmentation of Oral Mucosa (Peutz-Jeghers Syndrome). International Abstracts of Surgery, 105: 1-15 (1957).

16. Troxell, M. A.: Syndrome of Peutz (Melanoplakia and Small Intestinal Polyposis)—Observations with Special Reference to the Oral Pigmentation. AMA Archives of Dermatology and Syphilology, 70: 488-493 (1954).

17. Turell, R., Kreel, I., and Seley, G. P.: The Peutz-Jeghers Syndrome. Surgical Clinics of North America, 39: 1309-1314 (1959).

18. Weber, R. A.: The Coincidence of Perioral Pigmented spots and Small Bowel Polyps. Annals of Surgery, 140: 901-905 (1954).

19. Bruwer, A., Bargen, J. A., and Kierland, R. R.: Surface Pigmentation and Generalized Intestinal Polyposis (Peutz-Jeghers Syndrome). Proceedings of Staff Meeting, Mayo Clinic, 29: 168-171 (1954).

20. . . . . Familial Patterns of Polyps and Pigmentation. Physician's Bulletin, 24: 200-203 (1959).

21. Mayo, C. W., DeWeerd, J. H., and Jackman, R. J.: Diffuse Familial Polyposis of the Colon. Surgery, Gynecology, and Obstetrics, 93: 87-96 (1951).

22. Zegarelli, Kutscher, Mercadante, and Kupferberg. Atlas of Oral Lesions Observed in the Syndrome of Oral Melanosis with Associated Intestinal Polyposis. American Journal of Digestive Diseases, 4: 479-489 (1959).

23. Nix, T. E.: Personal Communication.

24. Lockhart-Mummery, H. E., Dukes, C. E., and Bussey, H. J. R.: Familial Polyposis of the Colon. British Journal of Surgery, 43: 476-481 (1956).

25. Broders et al.: Primary Neoplasms of the Small Bowel: Analysis of 102 Cases. AMA Archives of Surgery, 79: 753-760 (1959).

26. Hafter, E.: Gatroenterologica, 84: 341 (1954). Quoted by Dormandy, 1958.

27. Vary, E. P.: Treatment of Multiple Polyposis of the Small Intestine. American Journal of Surgery, 91: 152-156 (1956).

Saint John's Hospital, Tulsa, Oklahoma

ABSTRACTS

Gastric Atrophy in Dogs Induced by Administration Of Normal Human Gastric Juice

William O. Smith,* Merlin K. DuVal,** Walter Joel,*** Walter L. Honska**** and Stewart Wolf*****
Gastroenterology, **39:55-60**, July 1960

With intravenous injections of normal human gastric juice, a pronounced atrophic gastritis has been induced in dogs.

The atrophic gastritis appears with as few as eight injections over an interval of four weeks and may persist for as long as nine months after injections are discontinued.

*Assistant Professor of Medicine.
**Associate Professor of Surgery.
***Professor of Pathology.
****Instructor in Medicine and Preventive Medicine and Public Health.
*****Professor of Medicine, Consultant Professor of Psychiatry, Neurology and Behavioral Sciences.

Role of Biliary and Pancreatic Secretions in the Inhibition of Gastric Motility by Fat in the Intestine

Rene Menguy*
The American Journal of Digestive Diseases **5:792-800**, Sept., 1960

Gastric motility was recorded in rats by means of water-filled intragastric balloons. Introduction of 1 ml. of fat into the proximal small intestine consistently suppressed gastric motility. In rats with diversion of bile from the small intestine this inhibition failed to occur unless bile salts were added to the administered fat. When both bile and pancreatic juice were diverted from the small intestine, inhibition occurred only when oil was mixed with bile salts and lipase prior to injection.

*Assistant Professor of Surgery.

Chromium-51 Labeled Erythrocytes As a Measure of Hemolysis

P. C. Johnson,* C. Bloedow** and J. Bahr***
Proc. Okla. Conference Radioisotopes in Agriculture **TID-7578:263-268**, 1960

Estimation of the life span of the erythrocyte is an aid in the classification of anemia. Chromium-51 labeled erythrocytes can be used for this purpose. Using the percentage remaining on the eighth day, we have found that a difference of statistical significance can be found between anemia due to hemolysis and those from other causes. The difficulties with this method of estimating erythrocyte life span have been discussed.

*Radioisotope Laboratory, Methodist Hospital, Houston, Texas.
**Out-patient Service, V.A. Hospital.
***Out-patient Service, V.A. Hospital.

The Clinical Expression of Magnesium Deficiency

William O. Smith,* James F. Hammarsten** and Leonard P. Eliel***
Jour. A.M.A. **174:77-78**, 1960

Magnesium deficit in man may result in a rather distinctive clinical syndrome characterized by central nervous system, neuromuscular, and cardiovascular manifestations. The clinical situations giving rise to this syndrome have been described.

*Assistant Professor of Medicine.
**Associate Professor of Medicine.
***Professor of Research Medicine.

FACULTY NEWS

James Arthur Cutter, M.D., former associate professor of anesthesiology at the University of Buffalo, is a new associate professor and vice-chairman of the Department of Anesthesiology at the University of Oklahoma School of Medicine.

CUTTER

Other recent additions to the full-time faculty include J. T. Jabbour, M.D., assistant professor of pediatrics and neurology, and Marshall Edelson, M.D., assistant professor of psychiatry.

Doctor Cutter is a 1951 graduate of Washington University School of Medicine. He interned at Percy Jones General Hospital, Battle Creek, Michigan, and took residency work at Brooke General Hospital, San Antonio, Texas. The anesthesiologist was on the Buffalo faculty four years, during which he also was associate director of anesthesiology at the E. J. Mayer Memorial Hospital, Buffalo.

Doctor Jabbour, a graduate of the University of Tennessee College of Medicine, succeeds Lucius Waites, M.D., now of Southwestern Medical College, Dallas, as associate director of the Birth Defects Center at Children's Memorial Hospital. After interning at Baylor University Hospital, Doctor Jabbour was in general practice three years before taking a pediatric residency at the University of Tennessee and then pediatric neurology training at the University of Minnesota. He was co-director of the Pediatric Neurology and Pediatric Seizure Clinic at Minnesota.

EDELSON

Doctor Edelson received a Ph.D. in 1954 and an M.D. degree in 1955 from the University of Chicago. The psychiatrist interned at Presbyterian Hospital, Chicago, and completed a residency at Sheppard and Enoch Pratt Hospital. Before coming here he was a captain in the U.S. Army Medical Corps, assigned as psychiatrist to the U.S. Disciplinary Barracks, Fort Leavenworth, Kansas.

AMA 15th CLINICAL MEETING

the medical summit in the mile-high city...

DENVER NOV. 26-30

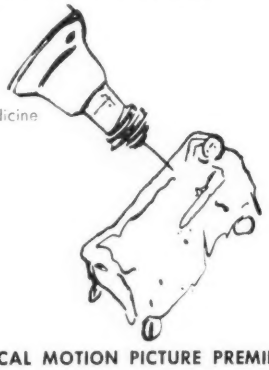
Denver—the hub of the Rocky Mountain states and air-rail-auto crossroads of the West—plays host to the nation's physicians next November by presenting the most vital, timely, and varied scientific program ever assembled at a winter clinical meeting.

Nothing in medicine is so new that you won't find it discussed or exhibited in Denver. *Planned just for you—the physician in practice*—a five-day session headlined by many of the nation's leading medical authorities offering a blending of "refresher" education with the most advanced knowledge, tools and techniques developed in recent research.

The entire scientific program is scheduled in one convenient location, Denver's Municipal Auditorium. Here are but a few of the many topical highlights:

PANEL DISCUSSIONS

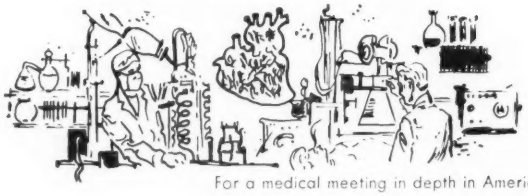
Influence of Heredity on Disease
New Developments in Virology
Space Research—Impact on General Medicine
American Habits vs. Health
Advances in Chemo- and Radiotherapy
Suicide—Causes and Prevention
Medical Computers and Electronics
Radiation Accidents and Injury
Sunlight and Skin Care



BREAKFAST MEETINGS

Community Psychiatric Care
Malmstrom Vacuum Extraction
Diagnosis in Pulmonary Surgery
Pyelogram Clinics
Poison Control Centers
Dermatology Quiz Sessions

- **MEDICAL MOTION PICTURE PREMIERES**
- **CLOSED CIRCUIT COLOR TELEVISION**
- **215 SCIENTIFIC AND INDUSTRIAL EXHIBITS**



For a medical meeting in depth in America's highest city

DECIDE NOW—IT'S DENVER IN NOVEMBER

See JAMA October 14 for complete scientific program for physician advance registration and hotel reservations

American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

Report of Board of Trustees Meeting

In the first meeting since last Spring, the OSMA's Board of Trustees held an eventful four-hour session at the headquarters building on October 22nd. Highlighting the full agenda were such topics as: A medical education encouragement program; financial aid to medical students; Blue Shield coverage for physicians; and, fiscal reorganization of the OSMA.

More and Better Students

R. R. Hannas, M.D., Sentinel, Chairman of the OSMA's Council on Professional Education, gave a progress report on the association's program to attract the state's top students into the field of medicine. Termed "Medical Education Encouragement," the program was officially approved at last Spring's House of Delegates meeting, and was referred back to the Medical School Liaison Committee for implementation.

Doctor Hannas reported that the committee had met twice during the summer to develop specific plans to reach qualified highschool students and inform them about the profession of medicine. A folder entitled "Picture Yourself As A Future M.D." was prepared by the committee and OU Medical School officials, and is now ready for distribution, he said.

The Trustees were asked to appoint physician-counsellors for the highschools in their districts, who will appear before science clubs, answer questions about medicine as a career and distribute the folder (related article, page 610).

Doctor Hannas also reported that the Postgraduate Education Committee has planned eight decentralized postgraduate courses, the first of which is scheduled for Bartlesville on November 21st (related article, page 612).

Medical Student Aid

Trustees heard another progress report from Past-President Walter E. Brown, M.D., Chairman of the Financial Aid to Education Committee. Doctor Brown brought them up to date on committee plans to implement a House of Delegates directive calling for the establishment of a scholarship, grant-in-aid, and loan program for students at the University of Oklahoma School of Medicine.

He reviewed the House of Delegates action (May, 1961), which raises OSMA dues $5 per year to finance the program, then outlined and received approval on current committee plans to put the program into effect.

It was brought out that the dues increase would raise about $8,000 annually which, when split according to the formula laid down by the Delegates, would make about $3,200 available for scholarships and grants, and about $4,800 available for loans. Doctor Brown said the committee had agreed on the following definitions and stipulations applicable to the three categories of financial assistance:

- **Scholarships:** Monetary, nonrefundable awards to students based upon academic excellence (Five $500 scholarships to be offered to freshmen each year).
- **Grants-In-Aid:** Monetary, noninterest bearing grants to students based upon economic need, repayable on a voluntary basis ($600-700 available annually for such emergency purposes).
- **Loans:** Monetary assistance to students, refundable under the terms and interest rates set forth by the Delegates (Repayment must begin within five years of graduation and must be completed three years after it commences; 3% interest annually, beginning one year after graduation).

Doctor Brown concluded his progress report by stating that the committee agreed to have all applications for assistance (now being accepted for '62 class) processed through the OU Associate Dean of Student Affairs, with the OSMA committee responsible for final approval.

The Board of Trustees recommended that the present committee, comprised of the OSMA President, President-Elect, and immediate three Past-Presidents, continue to function until the 1962 annual meeting, at which time a more official provision could be made for continued supervision of the program.

Blue Shield for Doctors?

In another major action, Frank J. Nelson, M.D., Chairman of the Prepaid Medical Care Committee, reported that the majority of his group had recently voted to resubmit the question of making Blue Shield coverage available to physicians on a voluntary basis (similar proposals have been traditionally turned down by OSMA policy-making bodies).

The Board of Trustees was unanimous in once again denying official sanction to the proposal, reiterating its long-standing policy that physicians should continue to offer complimentary professional services

to each other and to the immediate families envolved.

As a follow-up to a previous Board action, Mark R. Johnson, M.D., Secretary-Treasurer of the OSMA, reported the results of a study of association fiscal policies and procedures, conducted in cooperation with a firm of certified public accountants.

Fiscal Reorganization

Johnson prefaced his remarks by stating that the purpose of the study was to keep bookkeeping, budget and audit procedures abreast of the growth of the organization; that it was not intended to cast criticism on past performance.

The report recommended sweeping changes in the fiscal setup, to include new bookkeeping and budget-planning methods, to provide for comprehensive audits of association financial records and to insure a more definite separation and accountability of Journal and membership dues funds. Also included in the report was a recommendation to change the association's present plans for accumulating reserves by diverting a portion of surplus funds into a trust fund, the earnings from which would be used in connection with the Financial Aid to Education Program.

Doctor Johnson was congratulated by the Trustees for the thoroughness of the report. It was pointed out that some of the recommended changes, however, would require House of Delegates action. Although it was recognized that most of the recommendations could be placed in effect administratively, action on the report was tabled on the basis that the policy changing portions were within the province of the House of Delegates.

Other Actions

In other actions, the Board:

- Approved continued sponsorship of two essay contests: AAPS and "Employ the Handicapped."
- Ratified the appointment of C. B. Dawson, M.D., Oklahoma City, to the Editorial Board.
- Learned the Oklahoma Poison Information Center was discontinuing service, and asked the Medical School Liaison Committee to investigate.
- Heard comprehensive reports of the New York AMA meeting from Oklahoma's Delegates and Alternates.
- Heard reports from Rex Kenyon, M.D., Chairman of the Annual Meeting Program Committee, and from R. Q. Goodwin, M.D., Chairman of the Council on Public Policy.
- Paid tribute to C. C. Young, M.D., deceased Trustee from Shawnee, and welcomed his replacement, Francis Davis, M.D., Shawnee. □

Influence of Heredity On Disease Topic For AMA Meeting

A study of heredity as it relates to human ills will be presented as a feature of the 15th annual clinical meeting of the American Medical Association November 26-30 at Denver.

Geneticists are rapidly advancing fundamental knowledge in this highly important medical field. This new knowledge will be passed on to clinicians for their guidance in practice.

"Genes, Chromosomes and Human Disease" will be the general subject of the section, under chairmanship of Leroy J. Sides, M.D., of Denver.

Theodore T. Puck, Ph.D., head of the department of Biophysics at the University of Colorado, will relate some of his new research findings in a paper entitled "The Gene and the Protein Molecule."

Other topics will include "Genes and Chromosomes," by David M. Bonner, Ph.D., University of California biologist; "Hereditary Aspects of Disease," by Walter Burdette, M.D., Salt Lake City; "Hemoglobinopathies," by Max Wintrobe, M.D., Salt Lake City.

John H. Talbott, M.D., of Chicago, editor of the Journal of the American Medical Association, will deliver a paper on "Gout" as a part of this section.

Much has been learned by the specialists in space medicine that will be of value to the practicing physician in treating patients who seldom get off the ground. This knowledge also will be presented in a section on space medicine at the meeting.

"The Impact of Space Medicine Research on General Medicine" will be presented by Hubertus Strughold, M.D., Ph.D., advisor for research to the commander, Aerospace Medical Center, Brooks Air Force Base, Texas.

Other space medicine topics will include "The N.A.S.A. Program in Life Sciences," by Brig. Gen. Charles N. Roadman, deputy director of the life sciences division of the National Aeronautics and Space Administration, Washington; "The Air Force Program in Aerospace Medicine," by Maj. Gen. Oliver K. Niess, surgeon general of the U.S. Air Force, Washington, and "Space Radiations: Their Physical Characteristics and Biological Implications," by Col. Gerrit L. Hekhuis, chief of radiobiology, School of Aerospace Medicine, Brooks Air Force Base.

An interesting series of papers will be presented at special breakfast programs November 28-29. Topics for the November 28 breakfast session will be "The Malmstrom Vacuum Extractor in Obstetrics;" "A Pyelogram Clinic," and "The Operation of a Poison Control Center." On November 29 topics will be "Community Care of Psychiatric Patients vs. Prolonged Institutional Care;" "Dermatology Quiz Session," and "Unusual Diagnostic Problems in Pulmonary Surgery."

A series of color television programs during the meeting will include such subjects as "The Art of Psychiatric Interviewing," "Resuscitation of the Newborn," "Total Abdominal Hysterectomy," "Primary Dermatologic Disorders" and "Dermatologic Manifestations of Systemic Disease."

Also scheduled is an outstanding program of medical motion pictures to be screened daily. □

Tulsa Welcomes New Members, Honors Seniors

Sixteen newcomers to practice in Tulsa County are seen above at the Annual Indoctrination Dinner for New Members of the Tulsa County Medical Society, held October 9th at The Mayo Hotel, Tulsa.

Seated, left to right, are: Paul A. April, M.D., internal medicine and rheumatic diseases; Ned T. Harney, M.D., internal medicine; James D. Green, M.D., internal medicine; Donald W. Bobek, M.D., surgery; and Bill F. Hutchins, M.D., obstetrics and gynecology.

Middle row, left to right: Thomas R. Cox, M.D., pathology; Roger Ray Paul, M.D., internal medicine; William M. Moore, M.D., internal medicine; Robert B. Williams, M.D., obstetrics and gynecology; Henry P. Hare, Jr., M.D., psychiatry; Frank A. Clingan, M.D., surgery; Paul C. Kemmerly, M.D., anesthesiology; and Melvin R. Swafford, M.D., anesthesiology.

Back row, left to right: David D. Paulus, Jr., M.D., radiology; Samuel B. Leslie, M.D., ophthalmology; and W. Pat Fite, Jr., M.D., plastic surgery.

Not present when the photograph was made were Walter H. Gary, M.D., radiology; C. Robert Cooke, M.D., internal medicine; John William Ward, M.D., surgery; and John A. Coates, M.D., neurological surgery.

Pavy and White Honored

Also honored were two senior members of the Tulsa County Medical Society.

Doctor Chester A. Pavy, veteran Tulsa ophthalmologist (center, below), is seen as he receives a gold pin from the Oklahoma State Medical Association in recognition of the completion of 50 years of active practice of medicine. Making the presentation is Doctor Walter E. Brown (left) of Tulsa, immediate Past-President of the OSMA. Doctor Pavy also received a certificate of Life Membership.

Doctor N. Stuart White, retired Tulsa surgeon, is seen at right. Doctor White was presented a certificate of Life Membership.

Doctor Pavy graduated from Indiana University College of Medicine in 1911. He practiced until 1927 at Terre Haute, Indiana, at which time he took two years of specialty training in ophthalmology and otolaryngology at the Chicago E.E.N.T. Hospital and the University of Vienna. He entered practice in Tulsa in 1929. Doctor Pavy retired earlier this year.

Doctor N. Stuart White, a graduate of the University of Oklahoma School of Medicine, Class of 1921, practiced at Sand Springs before moving to Tulsa in 1925. One of Tulsa's most active surgeons, he retired in January of this year.

Guest speakers at the Annual Indoctrination Dinner included Mr. Jack Rue Coleman, professional medical management consultant of Dallas, Texas; Doctor Mark R. Johnson, Secretary-Treasurer, Oklahoma State Medical Association, Oklahoma City; Doctor Frank J. Nelson, Past-President, Tulsa County Medical Society, and Doctor Wendell L. Smith, President, Tulsa County Medical Society. Doctor R. W. Goen, Chairman of the Medical Precepts Committee, presided.

Guests included Doctor Clinton Gallaher of Shawnee, President, and Mr. Don Blair, Oklahoma City, Associate Executive Secretary, Oklahoma State Medical Association. There were 103 physicians present. □

Medical Education Gets Plug From OSMA

Oklahoma medicine will no longer take a back seat to industry in its quest for the state's top students. A "medical education encouragement" program was launched October 22nd, when R. R. Hannas, M.D., Chairman of the OSMA Council on Professional Education, announced to the Board of Trustees that a comprehensive program was ready for implementation.

The idea for such a program was born last Spring under the direction of the Medical School Liaison Committee, Gregory E. Stanbro, M.D., Chairman, and was officially approved by the House of Delegates in May. Hannas, representing the Council and the Committee, told the Trustees how the program will work and requested their cooperation.

Each Trustee was asked to appoint a physician pre-med counsellor for each highschool in his district. These counsellors are to appear before pre-med and science clubs for the dual purposes of discussing medicine as a challenging vocation, and outlining admissions policies and procedures at the University of Oklahoma School of Medicine.

"We are living in an age of intense competition for the more talented students," Hannas said, "and industry has been dipping into the quantity and quality of students available for medical education."

Physicians participating as highschool counsellors will be armed with reference material on medical education and will be supplied with ample quantities of a special folder entitled "Picture Yourself As a Future M.D." The folder, prepared by the Medical School Liaison Committee and the University of Oklahoma School of Medicine, will provide each counsellor with the text of his presentation to highschool groups, and may also be used as hand-out material for prospective medical students.

In the interest of informing *all* OSMA members of the *current criteria* of medical school admissions policies, the Medical School Liaison Committee requested that the full text of the folder be printed in the *Journal*. It is hoped that all physicians, regardless of whether they are serving as highschool counsellors, will assist in attracting top-talent into medical education.

"Picture Yourself As A Future M.D."

"M.D."—wouldn't *you* be proud to have these special initials after *your* name?

To the world they mean you are a member of the most challenging, respected, exciting and dynamic of all professions . . . and, most importantly, the degree "M.D." marks you as a person whose whole life is devoted to serving mankind.

You who are now in highschool or in your early college years are perhaps wondering about the selection of an inspiring career. If so, consider the profession of medicine—a profession which offers unlimited opportunity for those who—

- *Have a strong desire to help others,*
- *Are anxious to keep abreast of rapid scientific developments, and*
- *Are curious to probe the still unsolved mysteries of human life.*

American Medicine needs such high caliber men and women to help meet the challenge which the future holds.

A growing population, greater diversity of work opportunities for physicians, and tremendous progress in medical science are creating an increasing demand in America for even greater numbers of highly trained doctors of medicine. Toward this goal—a goal of maintaining the world's highest health standards for Americans—the Oklahoma State Medical Association and the University of Oklahoma School of Medicine are dedicated.

As an Oklahoman, you are fortunate to have one of the nation's recognized medical schools right at your doorstep. You undoubtedly have many questions concerning the school and medical education in general. This pamphlet is designed to answer them. The other question—your decision to serve mankind—is up to you!

"Facts About Medical Education in Oklahoma"

Q—Who is eligible to apply for admission to the University of Oklahoma School of Medicine?

A—A student who can present a minimum of 90 semester hours of work, exclusive of physical education and military science, from an accredited liberal arts college and have within those 90 hours at least 34 in the prescribed fields of general chemistry (8 hours), organic chemistry (4 hours), physics (8 hours), biology (8 hours) and English (6 hours).

Q—What is the required grade average?

A—The student must complete his college work with a 1.5 (B minus) average in the prescribed fields above. He must have a 1.5 overall average, with at least a 1.0 (C) in each of the above subjects. (In calculating the numerical grade average, an A is converted to three points, a B to two points, a C to one point, a D to zero points, and an F to Minus-one point for each semester credit.)

Q—When a student repeats a course in order to improve his standing in college, will the better grade be counted for medical school application purposes?

A—Yes. If a course in which he made a D or F is repeated, the new grade will be substituted in calculating the grade average for interview and possible admission purposes.

Q—When may a student apply for admission to medical school?

A—During 1961, the dates for receiving applications are July 1 through December 1. This period may be extended in the future. Applications are made to the Associate Dean in charge of Student Affairs. They are processed as received and students are notified to report to the School of Medicine for an interview.

Q—When and how are the interviews conducted?

A—The Admissions Board begins interviewing applicants in September. The nine-member board is divided into three interview teams, each with three members. Normally each team interviews an individual, but on occasion an applicant may meet with one, two or all three teams, or he may be asked to meet with the entire Board. Finally, the Board meets as a whole to discuss and evaluate the applicant.

Q—What factors other than the required grade average are taken into consideration by the Board?

A—(1) Results of the Medical College Admission test.

(2) The premedical advisor's letter of evaluation.

(3) The board's impression of the student and his performance at the time of the personal interview.

Q—What is the Medical College Admission Test?

A—This examination is given twice annually (in the spring and fall) at selected schools in each state under auspices of the Association of American Medical Colleges. College faculty advisors are informed of the dates and locations. The examination is divided into four sections: Tests of verbal and quantitative ability aimed at measuring the capacity to learn; a test of general knowledge of the humanities and social sciences; a test measuring understanding of the basic principles of biology, chemistry and physics.

Q—What action does the Board of Admissions take following evaluation of the applicant?

A—The student may be offered a place in the next year's class, deferred for later consideration, or rejected. All offers for a place in class are made contingent upon the student satisfactorily completing all requirements for admission within the time allocated.

Q—When is the applicant notified whether he will be offered a place in the next entering class?

A—Interviews are generally held on Saturdays and notifications are mailed out on the following Monday. The student usually will know the decision of the board by Tuesday or Wednesday following the Saturday interview.

New OSMA Folder

Q—Who composes the Admissions Board?

A—The Board is made up of medical school faculty members chosen from a roster of those who indicate a wilingness to serve. Names are selected from this roster in ballotting at a general faculty meeting. The Dean in turn selects new members from the list of those receiving the greatest number of votes by the faculty. The appointments are approved by the University of Oklahoma Regents. A balance of full time and part time faculty members, preceptors and visiting lecturers is maintained.

Q—How should the high school student prepare for the study of medicine?

A—The best preparation is a grounding in the fundamentals required for admission to a liberal arts college. A variety of courses in the sciences and humanities will help develop the intellectual curosity, objectivity, judgment and habits of learning that are basic to medical education.

Q—What state colleges and universities offer the education required for medical school admission?

A—All accredited senior colleges of the State of Oklahoma offer a premedical curriculum. Virtually all are represented in the present enrollment of the School of Medicine.

Q—What is the cost per year of attending the University of Oklahoma School of Medicine?

A—Tuition is $500 a year for in-state students; $1,000 for out-of-state students. The average total cost for four years of medical school (all expenses) is between $9,000 and $10,000.

Q—What Financial assistance is available to a medical student and where does he seek such help?

A—Several loan funds are available. Some are administered through the University of Oklahoma at Norman and others by the School of Medicine. The latter includes funds contributed by the Oklahoma State Medical Association.

Beginning this year, a few scholarships also will be offered. OSMA members will begin contributing to a scholarship fund in 1962, and the Avalon Foundation has awarded the medical school a one-time grant to provide a number of scholarship awards.

Requests for information about loans or scholarships should be addressed to the Associate Dean of Student Affairs, University of Oklahoma School of Medicine, 800 Northeast 13th Street, Oklahoma City, Oklahoma.

Q—How many students are admitted to the School of Medicine each year?

A—Officially the school is authorized to accept 100 for each entering class. However, in recent years the University Regents have permitted the school to accept 104 in an attempt to maintain the allowable class size in the face of early attrition.

Q—Briefly, what does the medical

(Continued on Page 614)

Four PG Courses Slated For November, December

The Council on Professional Education's postgraduate program will get underway this month when the first two decentralized refresher courses are offered in Bartlesville on November 14th, and Enid on November 28th. Six other courses are scheduled for the balance of the year in the following locations: Chickasha (December 5th), Burns Flat (December 19th), Ardmore (January), Ada (February), Western Hills (March), and Miami (April).

In keeping with the concept of the refresher series, the meetings will be devoted to principal organ systems of the body. Programs arranged through December include: "The Liver," scheduled for Bartlesville, "The Lung," slated for Enid, "The Kidney" for Chicaksha, and "The Liver" for Burns Flat.

The courses will follow the same general format: two hours of instruction, approximately one hour for dinner, followed by an additional hour of instruction and an hour for discussion. AAGP has approved all such courses for four hours credit, Category 1. Scientific presentations will feature basic science, diagnostic and therapeutic considerations of the organ system.

Instructors and their topics for "The Liver" course are: G. Rainey Williams, M.D., "Anatomy" and "Surgery in Liver Disease"; Jack D. Welsh, M.D., "Metabolism" and "Liver Disease in Childhood"; Lee Honska, M.D., "Hepatic Function" and "Jaundice During Pregnancy."

Case presentations on cirrhosis with ascites, postop gallbladder disease, hepatic coma, and esophageal varicies will also be offered.

"The Lung" will feature the following instructors and topics: Charles W. Harvey, M.D., "Pathophysiology of Emphysemia"; Gilbert S. Campbell, M.D., "Respiratory Acidosis"; Harold G. Muchmore, M.D., "Recent Advances in Viral Respiratory Diseases"; and, Warren L. Felton, M.D., "Surgical Complications of Pulmonary Infections." A case conference will also be presented.

"The Kidney" course will have the following program: John Drake, M.D., "Renal Functions"; Robert L. Lindeman, M.D., "The Kidney and Electrolytes"; John P. Colmore, M.D., "Pyelonephritis." In addition, a panel on "Acute Renal Failure" will be presented and problem cases discussed.

The Bartlesville meeting ("The Liver") will be held at the Elks Club, 4:30 p.m., November 14, under the local direction of Elvin M. Amen, M.D. Enid's meeting ("The Lung") will begin at 4:30 p.m., November 28th, at the Oakwood Country Club, with Clarence R. Roberts, Jr., M.D., in charge. On December 5th, Chickasha's meeting ("The Kidney") will be held at 4:30 p.m. in George's Steak House, B. C. Chatham, M.D., in charge. The December 19th meeting ("The Liver") will be held at 4:30 p.m. in the Officer's Club, Clinton-Sherman AFB, Burns Flat with R. R. Hannas, M.D., handling local arrangements.

Registration fee for all meetings is $7.50, and includes dinner. □

Publications Available

The OSMA Executive Office, Box 9696, Oklahoma City, has two publications in stock for order by physician members.

Reprints of the special May *Journal*, "Disaster Medical Care" are available in limited numbers. Physicians may wish to distribute the magazine to key people in their local civil defense organization.

Another publication, the AMA's new booklet, "The Cost of Medical Care" is ready for distribution on order from county medical societies or individual members (two per member). It's an interesting statistical analysis of the health dollar as compared to other living costs.

Cancer Seminar on Tap for December

"What's New in Cancer?—1961" will be the theme for the Ninth Medical and Scientific Session of the American Cancer Society, Oklahoma Division, to be held in Oklahoma City's Huckins Hotel, December 2, 1961.

Following registration, the day-long meeting will open scientific presentations at 9:00 a.m. A general question and answer period will follow morning and afternoon lectures.

Topics to be discussed by four guest lecturers will be: "Some General Features of Cancer in the United States" and "Smoking and Lung Cancer" by Michael B. Shimkin, M.D., Associate Director for Field Studies, National Cancer Institute; "Duration of Human Cancer Prior to Diagnosis" and "Diagnosis and Treatment of Lymphomas" by Vincent P. Collins, M.D., Department of Radiology, Baylor University College of Medicine, Houston; "Colon Polyps in Relation to Carcinoma of the Colon" and "Thyroid Nodules in Relation to Carcinoma of the Thyroid" by Jonathan E. Rhoads, M.D., Chairman of the Department of Surgery, University of Pennsylvania School of Medicine, Philadelphia; and "Diagnosis and Management of Early Pelvic Malignancies" and "Pelvic Malignancies During Pregnancy" by Harry M. Nelson, M.D., Department of Obstetrics and Gynecology, Wayne State University, Detroit. □

Beds Influence Rates

The number of hospital beds is "The factor which, probably more than any other," determines the rate of hospital utilization in any community, state or nation," said Milton I. Roemer, M.D., Sloan Institute of Hospital Administration, in the November 1st issue of **Hospitals.**

As the number of beds increase, utilization goes up, Doctor Roemer said, but observed that this phenomen does not imply abuse since former facilties might have been inadequate. His answer? Research to determine "true need" for beds in a given situation. □

Overhead Expense Policy Approved

OSMA's Council on Insurance has authorized its agent, C. L. Frates and Company, to market a group insurance plan to protect association members against overhead expenses while they are disabled and unable to practice. Written by the Continental Casualty Company, successful bidder, the program will be immediately available upon individual request, and a statewide promotion of the coverage is scheduled for next spring in conjunction with the annual servicing of the OSMA's Accident and Health Program.

Overhead expense protection is a comparatively new idea in arranging proper insurance protection when a disabling illness occurs. A physician's income is channeled in many ways, but much is needed to pay the expenses of his practice—such as rent, salaries, telephone and utilities. These items are covered by overhead expense insurance.

Thus, a physician may purchase health and accident insurance to cover his loss of income due to disability, and may further protect himself by having overhead expense insurance to cover professional expenses. With overhead expense protection, he will not have to relinquish an established address, discharge valuable employees, or sacrifice tools of trade.

A maximum benefit of $1,000 per month is provided for each separated period of disability beginning thirty days after disability occurs (waiting period) and extending to eighteen months. The only exclusions in the policy are disabilities caused by pregnancy, attempted suicide, disability as a pilot of a private aircraft, war and military service. Premiums paid for this type insurance are tax deductible as a business operating expense.

All practicing members in good standing of the Oklahoma State Medical Association, under the age of 70 years old, are eligible for the coverage. C. L. Frates and Company's agents are now ready to supply information. □

Grady County Physician Honored

Rebecca H. Mason, M.D., Chickasha, was twice-honored at a recent meeting of the Grady County Medical Society when OSMA Trustee, J. B. Miles, M.D., Anadarko, (pictured with Doctor Mason in left photograph) presented her with a Certificate of Accomplishment.. The other award, an Honorary Life Membership in the Oklahoma State Medical Association, was made by Harvey D. Elkouri, M.D., Chickasha, President of the Grady county society (pictured in the right photograph).

Your Journal Rated Best

The *Journal* of the Oklahoma State Medical Association was judged the nation's finest state medical publication at the 1961 State Medical Journal Conference, held October 30, 31, in Chicago.

At the meeting sponsored by the State Medical Journal Advertising Bureau, Oklahoma's magazine bested the competition of 34 publications for its cover design, typography, content, quality of production and overall impression. Judging the journals, and on hand to make the award, was nationally-known typography expert, O. M. Forkert, President of Forkert, Blome and Associates, Inc., Chicago.

Second and third places in the judging went to the Nebraska State Medical Association Journal and the Rocky Mountain Medical Journal, respectively. Oklahoma received a score of 93½ out of the 100 possible in Forkert's rating system.

The conference, held every two years by the SMJAB, a national advertising sales agency for the state publications, was attended by about one hundred editors and staff representatives of the state medical associations. In addition to the competition, the conference program featured educational presentations on the function, editorials, medical writing and business management of medical journals.

Oklahoma's Editorial Board is comprised of Ben H. Nicholson, M.D., Editor, John G. Matt, M.D., and C. B. Dawson, M.D. Louise Martin and Don Blair are staff representatives. The *Journal* is printed by the Transcript Press, Norman, Oklahoma. □

Mercy Hospital Heart and Research Institute

has cytologic and autoradiographic facilities for differentiation of gastric lesions. This diagnostic service is free of charge to patients with demonstrated gastric lesions.

★ ★

Call CE 2-9171, Ext. 250, for appointment.

★ ★

Mercy Hospital

501 N.W. Twelfth Street

Oklahoma City, Oklahoma

DEATHS

MYRON C. ENGLAND, M.D.
1906-1961

A native of Salida, Colorado, Myron C. England, M.D., 55-year-old Woodward physician, died on August 22, 1961.

Since his graduation from the University of Oklahoma School of Medicine in 1936, Doctor England had spent 25 years in the practice of his specialty, EENT, in Woodward.

He was a Fellow of the American Academy of Otolaryngology and Rhinology and a Diplomate in the American Board of Otorhinology.

During World War II, Doctor England served four and a half years in the South Pacific. He had continued active service in the Army Reserve and held the rank of Lieutenant Colonel.

Interested in both civic and medical affairs, he had been secretary for the Northwest Counties Medical Society for many years. □

JACK O. AKINS, M.D.
1910-1961

Tulsa urologist, Jack O. Akins, M.D., 51, died August 19, 1961.

Born in Hartshorne, Oklahoma in 1910, Doctor Akins graduated from the University of Arkansas School of Medicine in 1939. During World War II, he served with the 36th Army Division. In 1945, he established his practice in Tulsa.

Doctor Akins was a member of the Southwestern Urological Association. □

JOHN F. GORRELL, M.D.
1881-1961

A Life Member of the Oklahoma State Medical Association, John F. Gorrell, M.D., died in Tulsa, October 11, 1961.

Born in Hebron, West Virginia in 1881, Doctor Gorrell graduated from the University of Pennsylvania School of Medicine in 1908. After two years of practice in Homestead, Pennsylvania, he came to Tulsa where he specialized in EENT.

Active in medical and civic affairs, he served as President of the Tulsa County Medical Society in 1930.

After being awarded his Life Membership in the state association in 1957, Doctor Gorrell was again honored in 1959 when the association awarded him a 50-Year-Pin in recognition of his service to the profession. □

WARREN T. MAYFIELD, M.D.
1895-1961

Warren T. Mayfield, M.D., 66-year-old former Oklahoma physician, died in Norman, October 22, 1961.

A native of Norman, Doctor Mayfield graduated from the University of Oklahoma School of Medicine in 1920 and the following year established his practice in Norman. He remained there until his retirement in 1953 when he moved to Winslow, Arkansas.

A veteran of World War I, he was active in civic as well as medical affairs. A Past-President of the Cleveland County Medical Society, he had served as a Councilor to the Oklahoma State Medical Association.

Recognizing his years of service to the medical profession, he was awarded an Honorary Life Membership by the Oklahoma State Medical Association in 1954. □

Medical Education . . .

(Continued from Page 611)

school curriculum include?

A—The first and second years (preclinical) include lecturers and laboratory courses in anatomy, biochemistry, microbiology, pathology, pharmacology, physiology and preventive medicine and public health. Introductory courses in various clinical fields are begun here, also.

In the third and fourth years (clinical) the student spends most of his time in the teaching hospitals, working with patients in the departments of medicine, surgery, pediatrics, gynecology and obstetrics, psychiatry, anesthesiology, and others. The subspecialties are taught also. There are approximately 20 departments with which the students come in contact during the four years of study. □

MISCELLANEOUS ADVERTISEMENTS

PHYSICIAN doing internal medicine desires to dispose of practice. Office located in prominent medical building in town of over 100,000 population in Oklahoma. Contact Key L, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

RECENTLY COMPLETED, and now leasing, beautiful new Midwest City medical building. Only one suite left. Contact Key O, The Journal of the Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City.

FOR SALE at bargain prices: lensometer (A.O.), projector (B & L), a opthalmoscopes (A.O.), sterilizer, perimeter, spot lamp, cuspidor, treatment cabinet, treatment table and treatment chair. Contact Mrs. J. J. McDonald, 4734 Dartmouth, Bartlesville, Oklahoma.

WANTED PARTNER or associate, with chance to eventually retire, for general practice in city. $20,000 income, average daily load 15-20, same location for 20 years. General practitioner, either recent graduate or middle age, who could do O.B. and minor surgery would do well. All records available. Mary Edna Sippel, M.D., 308 Utica Square Medical Center, Tulsa 14, Oklahoma.

SOUTHERN OKLAHOMA group desires young general practitioner for association, leading to partnership. Write Key B, The Journal, P.O. Box 9696, Oklahoma City, Oklahoma.

A WONDERFUL location in a beautiful new building. Space available for doctors offices. We will complete this to your desired specifications. Frank Richards Construction. MU 5-5597, Oklahoma City.

BIG SAVINGS ON "RETURNED-TO-NEW" and surplus equipment. Reconditioned, refinished, guaranteed. X-Ray, examining tables, Autoclaves, ultrasonics, diathermies, microscopes, OR tables, OR lights, and more. Largest stock in the Southwest. Used Medical equipment WANTED. TEX-RAY Co., 3305 Bryan, Dallas. (Open to the profession Wednesdays, Thursdays, 9-5. Other hours by arrangement.)